ADVANCED FINANCIAL MANAGEMENT

Revision Kit

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ACKNOWLEDGMENT

We gratefully acknowledge permission to quote from the past examination papers of the following bodies: Kenya Accountants and Secretaries National Examination Board (KASNEB); Chartered Institute of Management Accountants (CIMA); Chartered Association of Certified Accountants (ACCA).

We would also like to extend our sincere gratitude and deep appreciation to Mr. Geoffrey Ngene for giving his time expertise and valuable contribution which were integral part in the initial development and updating this revision kit .He holds the following academic honours, MBA, B.COM (Finance), CFA (East Africa), currently pursuing PHD in Finance at the USA. He a lecturer at Strathmore University School of accountancy, Faculty of Commerce and Faculty of information Technology, Kenyatta University MBA and undergraduate Faculty of Commerce.

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Part I: Introduction

Part I: Introduction

This revision kit addresses needs of students preparing to sit CPA Section 5 examination for Advanced Financial Management (AFM).
The kit is divided into THREE main parts:

Part I: INTRODUCTION

Approach to Examinations
Syllabus

Part II: REVISION QUESTIONS AND ANSWERS

Past paper questions with model answers (Past papers June 2008- December 2013)

Part III: COMPREHENSIVE MOCK EXAMINATION PAPERS WITH SAMPLE ANSWERS

To make effective use of this kit, candidates are advised to:
Read widely some of the books suggested in the reading list so as to have adequate background information relating to the issues raised in the revision questions.
Do the MOCK papers in part III under exam conditions and then check the solutions provided to assess their success in tackling the questions.

Given adequate and focussed preparation, this kit should be useful in enabling any student preparing for examinations in Financial Management and related courses to pass with good grades in the exams.

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APPROACH TO EXAMINATIONS

The following are important points to note as you sit your exam:

Read carefully and follow instructions given on the examination paper. Note that you are expected to answer all **five** questions for the examination.

Assess the weight given to each question by looking at the marks and devote adequate time to answering precisely and conclusively all questions attempted. You should pace yourself to complete the examination in the time allowed. Do not be tempted to spend too long on your first one or two questions because you will be forced to rush the remaining questions and the quality of answers will inevitably be poor.

Try to fully understand the question before attempting to answer, so as to address the specific points being asked and also to avoid missing out some parts of a question.

Avoid long answers that do not address the questions asked, as these will not gain you extra marks. Clear layout of answers would benefit you. Use of paragraphs and headings rather than just writing a solid block of text for your answer is recommended. For questions that require narrative answers, **margin to margin textis difficult to read.** This format should not be used as it makes reading difficult and sometimes answerpoints can be missed with consequent loss of marks. The use of space in the form of clear gaps between question parts, the use of some form of numbering or bullet points to clearly indicate the point being made, make understanding so much easier for the examiner.

Remember to always be relevant to the expectations of the questions. Avoid setting and answering your own question (s). Thus you will be expected to read thoroughly and understand questions before attempting to answer.

Check questions divided into parts. These require that you address the parts adequately to earn maximum marks. It is equally important to assess the marks allocated to questions to see the extent of your answers. Give appropriate and relevant examples when required.

The paper involves some practical aspects as you may be required to give, for example, graphical illustrations of answers. This therefore requires that you prepare adequately by knowing the standards involved and the expectations of the examiner in the practical questions. (Revision questions provide some typical answers).

Always maintain confidence in approach to the examination. This way, you will be able to tackle questions adequately and you will be guaranteed to do well.

Common terms in examinations

State/ List:

These terms imply that the candidate simply enumerates the expected points without any explanation.

Define:

This implies explanation to a term with the aim of bringing out pertinent meaning. The meaning should be clearly brought out in the explanation and if there are any related terms they should also be differentiated where necessary.

Outline:

Involves listing points and giving a brief explanation, sometimes a single line statement.

- **Discuss:**

This implies a thorough review of the identified case (question) with a view of bringing out clear meaning, merits and demerits as well as views of the candidate on the matter. If there are any comparisons or differences between the matters under discussion, they should also be brought out clearly.

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SYLLABUS

ADVANCED FINANCIAL MANAGEMENT

OBJECTIVE:

To ensure that the candidate is competent and up-to-date in the theories and practice of financial management and on interdependencies of the various financial and management functions.

18.0 SPECIFIC OBJECTIVES

A candidate who passes this subject should be able to:

- evaluate various investment alternatives open to a firm and select appropriate practical strategies
- guide management on dividend policies, their rationale and impact on value of the firm
- understand the workings of the International Financial System
- appreciate trends in the financial management field
- design and implement financial management systems.

CONTENT

18.1 Purpose of Financial Management

- Goals of the firm (an overview)
- Role of Financial Management in achieving corporate goals and objectives
- Social responsibility and financial management
- Evaluation of the Agency Theory. Relationship between shareholders and management, management and creditors and shareholders and creditors
- The theory of interest rates

18.2 Investment Decisions

- Theory of choice
- Capital Budgeting under uncertainty: Certainty Equivalents; Risk Adjusted Discount Rates; Sensitivity Analysis, Decision and simulation
- Abandonment decisions
- Capital rationing
- Portfolio management: Risk Return Trade-off; Mean-variance Analysis, Capital Efficient Portfolios
- Mergers, Amalgamation and take-overs as investment decisions

18.3 Valuation models for businesses

- Concept of value
- Market Value, Intrinsic Value, Replacement Value
- Application of valuation concepts; Capital Assets Pricing Model, Arbitrage Pricing Theory, Option Pricing Theory, Valuation of Futures and Swaps
- Application of valuation models in developing countries

18.4 Financing and Dividend Decisions

- Overview of sources of corporate finance; short-term, medium-term and long-term financing
- Internally generated finance
- Cost of capital
- Capital structure decisions; Modigliani and Miller propositions and others
- Dividend policy and valuation

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18.5 Financing and Analysis of Public Projects

- Social cost of capital
- Viability of public projects
- Project proposals
- Project management
- Performance of state corporations
- Internal and External debt management.

18.6 International Financial Management

- Operational and policies of international financial institutions and capital flows; the World Bank, International Monetary Fund, the International Development Association, International Finance Corporation, the Commonwealth Development Corporation, the United Nations Development Programme (UNDP)
- Impact of the above organisations in Kenya and other developing countries
- Current developments in the International and National Financial Markets
- Instruments used in International Financial Markets for Euro Bonds, Euro Dollars, the Euro
- Foreign exchange trading and hedging of foreign exchange risks

18.7 Contemporary Issues in Financial Management

- Financial innovations and their application in developing countries
- Use of finance research in current management practices

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Part II: Revision Questions and Answers

QUESTIONS - PAST PAPERS

JUNE 2008

QUESTION ONE

(a) Briefly explain three practical uses of the capital asset pricing model. (6 marks)

(b) Mr. Mlachake is currently holding a portfolio consisting of shares of four companies quoted on the Bahati Stock Exchange as follows:

Company	**Number of shares held**	**Beta equity co-efficient**	**Market price per share**	**Expected return on equity in the next year %**
A	20,000	1.12	65	18
B	30,000	0.89	50	23
C	30,000	0.70	45	11
D	20,000	1.60	80	17

The current market return is 14% per annum and the treasury bills yield is 9% per annum.

Required:

(i) Calculate the risk of Mlachake"s portfolio relative to that of the market. (5 marks)
(ii) Explain whether or not Mlachake should change the composition of his portfolio. (9 marks)

(Total: 20 marks)

QUESTION TWO

(a) Chuma Company Ltd is considering various levels of debt. Currently it has no debt. It has a total market value of Sh.30 million. By undertaking debt it believes that it can achieve a net tax advantage equal to 20% of the amount of debt. However the company will incur bankruptcy and agency costs as well as lenders increasing their interest rate if it borrows too much. The company"s managing director believes that the company can borrow up to Sh.10 million without incurring any of these costs. However, each additional Sh.10 million increment in borrowing is expected to result in the three costs cited being incurred. Moreover, the three costs are expected to increase at an increasing rate with leverage. The present value cost of various levels of debt is as follows:

Debt in millions of shillings	**PV cost of bankruptcy, agency and increased interest rate**
10	0
20	0.6
30	2.4
40	4.0
50	6.4
60	10.0

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Required:

a) Advise the managing director on the optimal amount of debt for Chuma Company. (10 marks)

(b) Mr. Kobe is contemplating acquiring Mfalme Flower Company. Incremental cash flows arising from the acquisition are expected to be the following:

Average of years	**Net cash flows Sh. millions**
1 – 5	50
6 – 10	90
11 – x	130

Mfalme has an all -equity capital structure. Its beta is 0.8 based on the past 60 months of data relating its excess returns to that of the market. The risk free rate is 9% and the expected return on the market portfolio is 14%.

Required:

What is the maximum price that Kobe should pay for Mfalme? (10 marks)

(Total: 20 marks)

QUESTION THREE

(a) The Chuma Ngumu Company needs to finance a seasonal rise in inventories of Sh.4 million. The funds are needed for six months. The company is considering using the following possibilities to finance the inventories:

1. A warehouse loan from a finance company. The terms are 18 per cent annualized with an 80% advance against the value of the inventory. The warehousing costs are Sh.350,000 for the six-month period. The residual financing requirement which is Sh.4 million less the amount advanced will need to be financed by forgoing cash discounts on its payables. Standard terms are 2/10 net 30: however the company feels it can postpone payment until the fortieth day without adverse effect.

2. A floating lien arrangement from the supplier of the inventory at an effective interest rate of 24 per cent. The supplier will advance the full value of the inventory.

3. A bank loan from the company"s bank for Sh.4 million. The bank can lend at the rate of 22%. Inaddition, a 10% compensating balance will be required which otherwise would not be maintained by the company.

Required:

Which is the cheapest option for the company? (15 marks)

(b) Highlight the limitations of using commercial paper as a form of short-term credit. (5 marks)

(Total: 20 marks)

QUESTION FOUR

(a) Explain the factors that finance managers should analyse before making a dividend decision. (5 marks)

(b) Assume all things are held constant other than the item in question, for each of the companies below:

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A company with a large proportion of insider ownership all of whom are high-income individuals. A growth company with an abundance of good investment opportunities.
A company experiencing ordinary growth that has high liquidity and much unused borrowing capacity. A dividend paying company that experiences an unexpected drop in earnings from a trend.
A company with volatile earnings and high business risk.

Required:

Explain whether or not you would expect each company to have a medium/high or a low dividend payment ratio and the reasons for such categorisation. (15 marks)

QUESTION FIVE

(a) Identify and explain three methods of handling risks in capital budgeting. (8 marks)

(b) Company A is considering investing in a project which has a three year life. The project would involve an initial investment of Sh.20 million. The finance manager has come up with expected probabilities for various possible economic conditions as follows:

Year	Economic Conditions	Sh."000" Net cash flows	Probability
0		(20,000)	1.0
1	High growth	10,000	0.2
	Average growth	6,000	0.7
	No growth	2,000	0.1
2	High growth	12,000	0.3
	Average growth	8,000	0.5
	No growth	4,000	0.2
3	High growth	16,000	0.4
	Average growth	12,000	0.3
	No growth	6,000	0.3

Required:

Assuming a discount rate of 15% should company A invest in the project? (12 marks)

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DECEMBER 2008

QUESTION ONE

Jabali Ltd. is a quoted company which is financed by 10,000,000 ordinary shares and Sh.50,000,000 of irredeemable 8% debentures. The market value of the shares is Sh.20 each ex-div and an annual dividend of Sh.4 per share is expected to be paid in perpetuity. The debentures are considered to be risk-free and are valued at par.

Mr. Jabali the managing director of the company is wondering whether to invest in a project which cost Sh.20 million and yield Sh.3.8 million a year before tax in perpetuity. The project has an estimated beta value of 1.25. The return from a well-diversified market portfolio is 16%.

Required:

a) The weighted average cost of capital of the company. (5 marks)
b) The beta of the company. (4 marks)
c) The beta of an equivalent ungeared company ignoring taxes. (4 marks)
d) Advise the company whether/or not the project should be accepted. In your explanation, highlight the significance of your calculations in (a), (b) and (c) above. (7 marks)

(Total: 20 marks)

QUESTION TWO

a) Futures contracts and options on futures contracts can be used to modify risk.

Required:

Identify the fundamental distinction between a futures contract and an option on a futures contract and explain the difference in the manner that futures and options modify portfolio risk. (10 marks)

b) Maendeleo Industries is concerned about interest rates rising. It needs to borrow in the bond market three months hence. The company believes that an option on treasury bond futures is the best hedging device.

i) Should the company buy a put option or a call option? Explain. (3 marks)

ii) Presently, the futures contract trades at Sh.1,000 and 3 month put and call options both involve premiums of 1½ per cent based on this strike price. During the 3 months, interest rates rise, so that the price on a treasury bond futures contract goes to Sh.950. What is your gain or loss on the option per Sh.1,000,000 contract? (10 marks)

(Total: 20 marks)

QUESTION FOUR

Gome Drug Products Ltd. (GDPL) is faced with several possible investment projects. For each, the total cash outflows required will occur in the initial period. The cash outflows, expected net present values and standard deviations are as follows:

Project	Cost Sh."000"	Net present value	Standard deviations
A	10,000	1,000	2,000
B	5,000	1,000	3,000
C	20,000	2,500	1,000
D	1,000	500	1,000
E	50,000	7,500	7,500

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All projects have been discounted at a risk-free rate of 8% and it is assumed that the distribution of their possible net present values are normal.

Required:

a) construct a risk profile for each of these projects in terms of the profitability index. (5 marks)

b) Ignoring size problems, do you find some projects clearly dominated by others? Should size problem be ignored? (5 marks)

c) What is the probability that each of the projects will have a net present value ≥0 (10 marks)

(Total: 20 marks)

QUESTION FIVE

KK Ltd. and KT Ltd. are two companies in the printing industry. The companies have the same business risk and are almost identical in all respects for their capital structures and total market values. The companies capital structures are summarised below:

KK Ltd.	**Sh."000"**
Ordinary shares (Sh.50 par value)	40,000
Share premium account	90,000
Profit and loss account	73,000
Shareholders" funds	203,000

KK Ltd shares are trading at Sh.140

KT Ltd.	**Sh."000"**
Ordinary shares (Sh.100 per value)	50,000
Share premium account	16,000
Profit and loss account	88,000
Shareholders" funds	154,000
12% debentures (newly issued)	50,000
	204,000

KT"s ordinary shares are trading at Sh.170 and debentures at Sh.100. Annual earnings before interest and tax for each company is Sh.50 million.
Corporate tax is at the rate of 30%.

Required:

a) If you owned 4% of the ordinary shares of KT Ltd. and you agreed with the arguments of Modigliani and Miller, explain what action you would take to improve your financial position. (4 marks)

b) Estimate by how much your financial position is expected to improve. Personal taxes may be ignored and assumptions made by Modigliani and Miller may be used. (8 marks)

c) If KK Ltd. was to borrow Sh.40 million, compute and explain the effect this would have on the company"s cost of capital according to Modigliani and Miller. What implications would this suggest for the company"s choice of capital structure? (8 marks)

(Total: 20 marks)

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JUNE 2009

QUESTION ONE

The governments of many less developed countries have experienced problems in recent years as their debt levels have risen leading to what has been called a "global debt crisis".

Required:

a) Explain briefly why these problems amount to a "crisis. (6 marks)
b) Discuss the approaches that have been used to overcome the problems. (8 marks)
c) Outline the benefits to multinational business enterprises of resolving the current global debt problems. (6 marks)

(Total: 20 marks)

QUESTION TWO

a) In the recent past, the government has been aggressively wooing multinational companies to come and invest their resources in Kenya.

Analyse the key decision areas that a financial analyst would have to advise a company that is considering making direct investment in Kenya and discuss the risks involved.

(10 marks)

b) The Kenyan economy has been performing poorly in the recent past and many companies have retrenched workers while yet others have closed their operations. Many product and skilled people are having to start their own small enterprises.

As a consultant for small and medium size firms, write a brief report, explaining the various ways in which small and medium size enterprises can raise capital for investment.

(10 marks)

(Total: 20 marks)

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QUESTION THREE

The Lakeside Company Limited is considering investing in a project requiring an initial outlay of Sh.100 million. The project life is two years after which there would be no expected salvage value. The possible incremental after-tax cash flows and associated probabilities of occurrence as as follows:

	Year 1 Net Cash flows (Sh. Million)	Conditional Probability	Year 2 Net Cash flows (Sh. Million)
0.4	50	0.3	20
		0.5	40
		0.2	60
0.4	85	0.3	50
		0.4	65
		0.3	70
0.2	90	0.2	90
		0.5	85
		0.3	85

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

Required:

a) i) The expected net present value of the project. (6 marks)

ii) Suppose that the possibility of abandonment exists and that the abandonment value of the project at the end of the first is Sh.50 million after taxes is abandonment the right choice? (4 marks)

iii) Calculate the new expected net present value assuming that the company would abandon the project if it is advantageous to do so. What are the implications of this calculation to you as a Finance Manager? (4 marks)

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b) Identify the case for and against Sensitivity Analysis as a method of handling risk in capital budgeting. (6 marks)

(Total: 20 marks)

QUESTION FOUR

a) A Kenyan company has agreed to sell goods to an importer in Zedland at an invoiced price of Z 150,000 (Zed (Z) is the currency of Zedland). Of this amount, Z 60,000 will be payable on shipment, Z 45,000 one month after shipment and Z 45,000 three months after shipment.

The quoted foreign exchange rates (Z per KSh.) at the date of shipment as as follows:

Spot	1.690	-	1.692
One month	1.687	-	1.690
Three months	1.680	-	1.684

The company decides to enter into appropriate forward exchange contracts through a bank in order to hedge these transactions.

Required:

i) State the advantages of hedging in this way. (2 marks)

Calculate the amount in Kenya Shillings that the Kenyan Company would receive. (3 marks)

Comment with hindsight on the wisdom of hedging in this instance, assuming that the spot rates at the dates of receipt of the two instalments of Z 45,000 were as follows:

Fist instalment	1.69	-	1.69
Second instalment	1.700	-	1.704

(3 marks)

b) Large companies with significant borrowings or overseas trade often use interest rate swaps and currency swaps.

Required:

Explain how interest rate swaps and currency swaps may be used. (12 marks)

(Total: 20 marks)

QUESTION FIVE

a) Briefly explain the main ways of classifying leases. (4 marks)

b) Gathura Ltd. is evaluating the acquisition of a heady duty forklit. The company can either purchase the equipment through the use of its normal financing mix (30% debt and 70% equity) or lease it.

The following additional information is available:

1.	Acquisition price	Sh.8,000,000
2.	Useful life	4 years
3.	Salvage value	Sh.1,600,000

Depreciation method – straight line	
Annual (before tax and depreciation) cash savings	Sh.2,400,000
Rate of interest on a four year period	10%
Marginal tax rate	10%
Annual lease rentals	Sh.2,400,000

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Annual operating expenses	Sh. 400,000
Cost of capital 12%	

Required:

i) Evaluate whether acquisition of the forklift through purchase is justified. (5 marks)

ii) Should Gathura Ltd. lease the asset? (11 marks)

(Total: 20 marks)

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DECEMBER 2009

QUESTION ONE

a) Corporate bonds have recently started gaining prominence as disintermediation financial instruments in developing countries.

i) Distinguish between financial intermediation and financial facilitation. (4 marks)

ii) Explain the relationship between the price of bonds and:

1. Interest rates in the market generally. (2 marks)
2. Term to maturity of the bonds. (2 marks)

iii) Explain any three theories that can help explain the term "structure of interest rates" (6 marks)

b) Explain the three forms of informationally efficient capital markets. (6 marks)

QUESTION TWO

A comparative study of the records of two oil companies, A Ltd. and B Ltd., in terms of their asset composition, capital structure and profitability shows that they have been very similar for the past five years. The only significant difference between the two firms is their dividend policy. A Ltd. maintains a constant dividend per share while B Ltd. maintains a constant dividend pay-out ratio. Relevant data is as follows:

	A Ltd.			B Ltd.		
Year	**Earnings Per share**	**Dividend per share**	**Price range in stock Exchange**	**Earnings per share**	**Dividend per share**	**Price range in stock exchange**
	Sh.	**Sh.**	**Sh.**	**Sh.**	**Sh.**	**Sh.**
1996	1.89	0.45	16 – 18	2.05	0.35	11 – 15
1997	1.50	0.45	12 – 15	1.45	0.25	6 – 14
1998	2.00	0.45	14 – 20	2.07	0.36	7 – 16
1999	2.60	0.45	21 – 26	2.55	0.45	15 – 23
2000	3.90	0.45	26 – 40	4.08	0.69	21 – 44

Required:

a) For each company, determine the dividend pay-out ratio and the price – earnings ratio for each of the five years. (12 marks)

b) B Ltd"s management is surprised that the shares of this company have not performed as well as A Ltd"s in the stock exchange. What explanation would you offer for this state of affairs? (4 marks)

c) Comment on the applicability of the Simple Price/Earnings (P/E) ratio to the typical technology (IT) company with a high valuation and heavy losses. (4 marks)

(Total: 20 marks)

QUESTION THREE

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

Z score = $1.2X_1 + 1.4X_2 + 3.3X_3 + 1X_4 + 0.6X_5$

X_1, X_2, X_3, X_4 and X_5 are ratios as indicated below:

Where: X_1 = Working capital/total assets
X_2 = Retained earnings/Total assets
X_3 = Earnings before interest and tax/Total assets
X_4 = Sales/Total assets
X_5 = Market value of Equity/Liabilities

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In this model, a Z-Score of 2.7 or more indicates non-failure and a Z-Score of 1.8 or less indicates failure. You are provided with the following information in respect of four 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
D Ltd.	40,000	200,000	30,000	100,000	1,800,000	1,000,000	2,000,000

Required:

a) The Z-Score for each of the companies. Comment on the results obtained. (10 marks)

b) It has been suggested that other ratios ought to be incorporated into Altman"s bankruptcy prediction model. What is your opinion on this? (5 marks)

c) List the indicators of possible business failure. (5 marks)

(Total: 20 marks)

QUESTION FOUR

a) What assumptions must be made in deriving the Capital Asset Pricing Model (CAPM)? (5 marks)

b) The table below gives the end-of-year levels of the price of an ordinary share in Kamili Ltd. and of a representative Stock Exchange Index.

Year	Kamili Ltd Share Price Sh.	Stock Exchange Index
1	150	1504
2	156	1631
3	162	1750
4	158	1690
5	170	1800
6	153	1590

Required:

Use the information to calculate the beta coefficient of Kamili Ltd.s ordinary shares, ignoring any dividend payments. (Work to four decimal places only at each stage of calculation). (12 marks)

c) Using the beta calculated in (b) above, and given a risk-free rate of 5% a year and an expected return from equities generally of 8% a year, calculate the expected rate of return on Kamili Ltd."s ordinary shares. (3 marks)

(Total: 20 marks)

QUESTION FIVE

a) Using a numeric example, illustrate and explain the pay-offs of a futures option and a futures contract. (5 marks)

b) Explain and illustrate graphically the options concepts of being:

i) "at the money" (4 marks)

ii) "in the money" (4 marks)

iii) "out of the money" (4 marks)

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for both a call and put option.

c) Explain with the aid of a diagram a protective put buying strategy. (3 marks)

(Total: 20 marks)

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JUNE 2010

QUESTION ONE

The directors of ABC Electronics Ltd. are considering a takeover bid for XYZ Electronics Ltd. However, they recognise that there are potential problems with any proposed bid. First, the directors of ABC Ltd. believe that any take-over bid would be resisted by the directors of XYZ Ltd.

Secondly, ABC Ltd. is short of cash and so any offer made to the shareholders of XYZ Ltd. would have to be either in form of a share-for-share exchange or a loan capital-for-share exchange.

Required:

a) Identify and discuss four reasons why a company seeking to maximise the wealth of its shareholders may wish to take over another company. (8 marks)

b) Evaluate the share-for-share exchange and loan capital-for-share exchange options as methods of purchase consideration from the viewpoint of the shareholders of both companies. (6 marks)

c) Identify and discuss six defensive tactics the directors of XYZ Ltd. may employ to resist an unwelcome bid. (6 marks)

(Total: 20 marks)

QUESTION TWO

Agency problems can be resolved by proper corporate governance. Corporate governance lays emphasis on shareholders rights and enhancement of shareholder value. In many countries including Kenya, the concept of corporate governance has gained increasing prominence in recent times as evidenced by the issue of corporate governance guidelines by the Capital Markets Authority (CMA).

Required:

a) Explain the reasons motivating the increasing interest in corporate governance. (8 marks)

b) Identify the benefits of good corporate governance to shareholders. (4 marks)

(e) Write short notes on any five corporate governance guidelines issued by the Capital Markets Authority (CMA) or similar authority in your country. (8 marks)

(Total: 20 marks)

QUESTION THREE

City Graphics Limited is evaluating a new technology for its reproduction equipment. The technology will have a three-year life and would cost Sh.800,000. Its impact on the company"s cash flows is subject to risk.

In the first year, management estimates that there is an equal chance that the technology will either succeed and save the company Sh.800,000 or fail saving it nothing at all.

If the technology fails in the first year, savings in the last two years will be zero. Even worse, there is a 40% chance that additional Sh.240,000 may be required in the second year to convert back to the original process.

If the technology succeeds in the first year, the second year cash flows may be Sh.1,440,000, Sh.1,120,000 or Sh.800,000 with probabilities of 0.20, 0.60 or 0.20 respectively. Third year cash flows are then expected to be Sh.160,000 greater or Sh.160,000 less than cash flows in the second year, with equal chance of either occurring.

All the cash flows above are after taxes.

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Required:

a) A probability tree depicting the above cash flow possibilities. (14 marks)
b) Net present values for each possibility using a risk-free rate of 5%. (3 marks)
c) The expected net present value of the technology using a risk-free rate of 5% (3 marks)

(Total: 20 marks)

QUESTION FOUR

Quality Products (QP), Ltd a leading manufacturer in its field, is planning an expansion programme. It has estimated that it will need to raise an additional Sh.100 million. QP Ltd. is discussing with its investment banker the alternatives of raising the Sh.100 million through debt financing or through issuing additional shares of equity. The debt to total asset ratio in its industry is 40%. QP Ltd."s balance sheet and income statements are as follows:

Balance sheet as at 31 December 2001

	Sh. Million		Sh. Million
Current Assets	600	Current liabilities	200
Net fixed assets	400	Long term debt (10%)	100
		Ordinary share capital (Sh.10 par)	100
		Share premium	200
		Retained earnings	400
	1,000		1,000

Income statement for the year ended 31 December 2001

	Sh. Millions
Total revenues	2,000
Net operating income	260
Interest expenses	10
Net income before tax	250
Income taxes (at 40%)	100
Net income after tax	150

The company expects to increase its total revenue by Sh.200 million and net operating income by Sh.26 million if the expansion is undertaken. The company"s effective tax rate is 40% and dividend payout has averaged about 60% of net income. At present, its cost of debt is 10% and its cost of equity is 15%. If the additional funds are raised through debt, the cost of debt will be 10% and cost equity will be 15.2%. If the funds are raised by equity, the cost of debt will be 10% and the cost of equity will be 14.8%.

The current share price at which new equity can be sold is Sh.100.

Required:

Calculate the effects of the alternative forms of financing on:

a) The total value of equity of the firm. (8 marks)
b) The firm"s total debt to equity ratio (based on balance sheet figures) (3 marks)
c) Price per ordinary share. (3 marks)
d) Total market-value of the firm. (3 marks)
e) The firm"s weighted average cost of capital. (3 marks)

(Total: 20 marks)

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QUESTION FIVE

Given below is the Option Pricing Model (OPM) derived by Black and Scholes in 1973 for predicting the market price of call options.

$$C = SN(d_1) - Xe^{-r_F T} N(d_2)$$

Where $d_1 = \dfrac{\ln(S/X) + r_F T + \frac{1}{2}\sigma^2 T}{\sigma\sqrt{T}}$

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

C	=	Market price of the option
$N(d_1)$ and $N(d_2)$	=	the cumulative probabilities for a unit normal variable
S	=	Underlying stock"s price
X	=	The exercise price
T	=	Time to maturity in years
σ^2	=	The instantaneous variance
r_F	=	The risk-free rate
In	=	Natural logarithm

Required:

a) State and briefly explain the relationship between a call option"s price and the following determinants:

1) the underlying stock"s price. (2 marks)
2) the exercise price (2 marks)
3) the time to maturity (2 marks)
4) the risk-free rate. (2 marks)

b) The following data relate to call options on two shares, A and B

	Calls	
	A	**B**
Months to expiration	3	9
Risk-free rate	10%	10%
Standard deviation of stock returns	40%	40%
Exercise price	Sh.55	Sh.55
Stock price	Sh.50	Sh.50

Required:

Using the Black-Scholes Option Pricing Model (OPM).

1) Calculate the price of call option A. (5 marks) 2) Of the two call options, which would you expect to have the higher price? Why? (Do not compute).

(2 marks)

c) On 1 March 2001, a Kenyan importer purchased goods from the United States of America worth U.S.$120,000 to be paid for two months later on 30 April 2001.

Kenyan shillings futures were available in the money market and could be bought in blocks of Ksh.100,000 and each future contract cost Ksh.1,000.

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Spot exchange rate on 1 March 2001 was Ksh.76.50 = US$ 1. The two-month forward exchange rate on 30 April 2001 was Ksh.79.50 = US$1 and the exchange rate at which futures were closed out was Ksh.77.50 = US$1.

Required:

The net loss(gain) of using the futures contract. (5 marks)

(Total: 20 marks)

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DECEMBER 2010

QUESTION ONE

a) What are the limitations of the Capital Asset Pricing Model (CAPM) as an investment appraisal technique? (4 marks)

b) Tom Donji an investment specialist has been entrusted with Sh.10 million by a unit trust and instructed to invest the money optimally over a two-year period. Part of the instructions are that:
The funds be invested in one or more of four specified projects and in the money market
The four projects are not divisible and cannot be postponed.
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.

	Initial Cost Sh."000"	Return over the two years %	Expected standard deviation of returns over the two-years %
Project 1 (P_1)	6000	22	7
Project 2 (P_2)	4000	26	9
Project 3 (P_3)	6000	28	15
Project 4 (P_4)	6000	24	13
Money Market (MM)	1000 (minimum)	18	5

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

Between Projects	Between Projects and Market Portfolio (MP)	Between Projects and the Money Market (MM)	Between Money Market and Market Portfolio
P_1 and P_2 = 0.70	P_1 and MP = 0.68	P_1 and MM = 0.40	MM and MP = 0.40
P_1 and P_3 = 0.62	P_1 and MP = 0.65	P_2 and MM = 0.45	
P_1 and P_4 = 0.56	P_3 and MP = 0.75	P_3 and MM = 0.55	
P_2 and P_4 = 0.57	P_4 and MP = 0.88		
P_3 and P_4 = 0.76			

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

Required:

By analysing the two-asset portfolios:

i) Use the mean-variance dominance rule to evaluate how Tom Donji should invest the Sh.10 million. (8 marks)

ii) Determine the betas and required rates of return for the portfolios and then use the Capital Asset Pricing Model (CAPM) to evaluate how Tom Donji should invest the Sh.10 million. (8 marks)

QUESTION TWO

Safariloam Limited issued a Sh.100 million par value, 10-year bond, five years ago. The bond was issued at a 2 per cent 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

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reports that a new Sh.100 million par value, 12 per cent, 5 -year bond can be issued by the company. Issuing costs for the new bond will be 5 per cent of the par value and a discount of 3 per cent will have to be given to attract investors. The old bond can be redeemed at 10 per cent 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 per cent and the after tax cost of debt to the company is approximately 7%.

Required:

a) Cash investment required for the refinancing decision. (9 marks)
b) Annual cash benefits (savings) of the refinancing decision. (6 marks)
c) i) Net Present Value (NPV) of the refinancing decision. (13 marks)
ii) Is it worthwhile to issue a new bond to replace the existing bond? Explain. (2 marks)

(Total: 20 marks)

QUESTION THREE

Matibabtu Pharmacia Ltd. recently carried out clinical trials on a new drug which was developed to reduce the effects of diabetes.

The research and development costs incurred on the drug amount to Sh.160 million. In order to evaluate the market potential of the drug, an independent research firm conducted a market research at a cost of Sh.15 million. The independent researchers submitted a report indicating that the drug is likely to have a useful life of 4 years (before new advanced drugs are introduced into the market). It is projected that in the year the drug is launched it could be sold to authorised drug stores (chemists and hospitals) at Sh.20 per 500mg capsule. After the first year, the price is expected to increase by 20% per annum.

For each of the four years of the drug"s life, the sales have been estimated stochastically as shown below:

Number of Capsules sold	Probability
11 million	0.3
14 million	0.6
16 million	0.1

If the company decides to launch the new drug, it is possible for production to commence immediately. The equipment required to produce the drug is already owned by the company and originally cost Sh.150 million. At the end of the drug life, the equipment could be sold for Sh.35 million. If the company decides against the launch of the new drug, the equipment will be sold immediately for Sh.85 million as it will be of no further use to the company.

The new drug requires two hours of direct labour for each 500 mg capsule produced. The cost of labour for the new drug is Sh.4 per hour. New workers will have to be recruited to produce the new drug. At the end of the life, the workers are unlikely to be offered further employment with the company and redundancy costs of Sh.10 million are expected. The cost of ingredients for the new drug is Sh.6 per 500mg capsule. Additional overheads arising from the production of the drug are expected to be Sh.15 million per annum. Additional work capital of Sh.2 million will be required during the drug"s 4-year life.

The drug has attracted interest of the company"s main competitors and if the company decides not to produce the drug, it could sell the patent right to Welo Kam (K) Ltd., its competitor, at Sh.125 million. The cost of capital is estimated to be 12%.

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Required:

a) The expected Net Present Value of the new drug. (16 marks
b) State with reasons whether the company should launch the new drug. (2 marks)
c) Discuss one strength and weakness of the expected Net Present Value approach for making investment decisions. (2 marks)

Ignore Taxation **(Total: 20 marks)**

QUESTION FOUR

A local supermarket chain wishes to increase the number of its retail outlets in the country. The board of directors of the company have decided to finance the acquisition by raising funds from the existing shareholders through a one for four rights issue. The recently published income statement of the company for the year ended 31 October 2002 has the following information:

	Sh."000"
Turnover	246,750
Profit before interest and tax	18,900
Interest	8,300
Profit before taxation	9,600
Corporate tax	2,850
Profit after taxation	6,750
Ordinary dividends	3,000
Retained profit for the year	3,750

The share capital of the company consists of 12 million ordinary shares with a par value of Sh.5 per share. The shares of the company are currently being traded on the Stock Exchange with a price/earnings ratio of 22 times. The board of directors has decided to issue the shares at a discount of 20 per cent on the current market value.

Required:

a) The theoretical ex-rights price of an ordinary share of the company. (10 marks)
b) The price at which the rights in the company are likely to be traded. (4 marks)
c) Assuming an investor held 4,000 ordinary shares of the company before the rights issue announcement, evaluate the following options and identify the best option to the investor.
   i) Exercise the rights. (2 marks)
   ii) Sell the rights (2 marks)
   iii) Do nothing. (2 marks)

(Total: 20 marks)

QUESTION FIVE

a) Discuss the importance and limitations of Executive Share Option Plans (ESOPs) in mitigating management/shareholder agency conflicts. (7marks)

b) Highlight the potential advantages and disadvantages for the host country of Foreign Direct Investment (FDI) by multinational companies. (7 marks)

c) Write notes distinguishing the following instruments used in international financial markets:

   i) The Euro. (2 marks)
   ii) The Euro bonds (2 marks)
   iii) The Euro dollars. (2 marks)

(Total: 20 marks)

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JUNE 2011

QUESTION ONE

(a) The Development Company of Kenya Ltd. has operated very successfully over the past few years despite the adverse economic situation. As a result, the company has a good liquidity position and a relatively advantageous stock exchange valuation. The chairman of the company has suggested that because of this, it should look for growth through a vigorous acquisition policy.

Required:

Prepare a memorandum outlining the points which should be included in an acquisition strategy paper to be presented for discussion in the next board meeting. (10 marks)

(b) Two relatively small companies, Elgon Company Ltd. And Kilima Company Ltd., have decided in principle to merge so that they can complete more effectively with larger companies. The boards of directors of the two companies have decided that a scheme of amalgamation should be drawn by the end of September 2003 based on the following agreed figures:

	Elgon Company Ltd. Sh.	Kilima Company Ltd. Sh.
Net assets	290,000,000	275,000,000
Share capital:		
(Ordinary Sh.10 shares; no variation for past seven years)	90,000,000	50,000,000
4% preference shares Sh.10 par value	-	10,000,000
Reserves	200,000,000	150,000,000
7% loan	-	65,000,000
Capital employed	290,000,000	20,000,000
Forecast maintainable equity earnings	33,750,000	20,000,000

Historical equity earnings and dividends:

	Elgon Company Ltd.		Kilima Company Ltd.	
	Equity earnings	Dividends	Equity earnings	Dividends
Year	Sh.	%	Sh.	%
2002	30,000,000	10	19,000,000	15
2001	27,000,000	10	9,000,000	10
2000	19,000,000	5	8,000,000	10
1999	12,000,000	5	13,000,000	12.5
1998	10,000,000	5	7,000,000	10

	Elgon Company Ltd.	Kilima Company Ltd.
Agreed P/E ratio for amalgamation	20	15

Required:

Comment on the values which have been placed on the ordinary shares for the purpose of merging the two companies. (10 marks)

(Total: 20 marks)

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QUESTION TWO

The board of directors of the Kaluma Power Corporation has decided that, for the purpose of testing whether its capital investment projects are acceptable, a compound interest (DCF) rate of 8% per annum will be used in evaluating investment projects.

All investment project is now under consideration. Estimates of the expected cash flows over forty years, are as follows:

	Expected cash flow during each year	
	Net receipts	Net payments
Years	Sh. Million	Sh. Million
1 - 5	-	2,000
6 – 10	1,500	-
11 – 20	800	-
21 – 40	400	-

The expected residual value of the assets is zero.

Required:

(a) Show whether the project satisfies the normal capital budgeting criteria for acceptance. (5 marks)

(b) Show how sensitive the calculation in (a) above is to:

(i) An increase in the residual asset value from zero to sh.1,000,000. (4 marks)

(ii) A 1% increase in the initial capital outlay (during each year of the outlay). (4 marks)

(iii) A 1% decrease in the estimate of expected cash flow during each of the years from 6 to 10. (4 marks)

(c) Show the effect of adopting the project on the ratio of reported profits in years 5 and 6 to net balance sheet value of assets at the beginning of those two years. Comment briefly on the usefulness of the latter type of ratio in the interpretation of accounts in the light of your calculation. (Assume that the expenditure in years 1 to 5 is capitalised, that straight-line depreciation is charged after year 5 at 5% per annum, and the actual cash flows are according to plan). (3 marks)

You can assume that all cash flows arise on the last day of each year, that all figures are net of tax and expressed in terms of constant price levels, and that working capital for the investment project can be ignored.

(Total: 20 marks)

QUESTION THREE

Juma Company Ltd. Which is effectively controlled by the Juma family although they own only a minority of shares, is to undertake a substantial new project which requires external finance of about Sh.400 million, leading to a 40% increase in gross assets. The project is to develop and market a new product and is fairly risky. About 70% of the funds required will be spent on land and buildings. The resale value of the land and buildings is expected to remain equal to or greater than, the initial purchase price. Expenditure during the development period of the first 4 to 7 years will be financed from other revenue of Juma Company Ltd. This will have a consequent strain on the company"s overall liquidity.

If, after the development stage, the project proves unsuccessful, then the project will be terminated and its assets sold. If, as is likely, the development is successful, the project"s assets will be utilised in production and the company"s profits will rise considerably. However, if the project proves to be very successful, thenadditional finance may be required to further expand the production facilities.

At present, Juma Company Ltd. Is all equity financed.

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The financial manager is uncertain whether he should seek funds from a financial institution in the form of an equity interest, a loan (long or short term) r convertible debentures.

Required:

(a) Describe the major factors to be considered by Juma Company Ltd. In deciding on the method of financing the proposed expansion project. (8 marks)

(b) Briefly discuss the suitability of equity, loans and convertible debentures for the purpose of financing the project from the point of view of:
(i) Juma Company Ltd. (3 marks)
(ii) The provider of finance. (3 marks)

Clearly state and justify the type of finance recommended for Juma Company Ltd.

(c) Butere Sugar Company Ltd. Has been enjoying a substantial net cash inflow. Before the surplus funds are needed to meet tax and dividend payments, and to finance further capital expenditure in several months time, they are invested in a small portfolio of short-term equity investments.
Details of the portfolio, which consist of shares of four companies listed on the stock exchange are as follows:

Company	Number of shares	Beta equity coefficient	Market price per share Sh.	Latest dividend yield %	Expected return on equity in the next year %
A Ltd	60,000	1.16	42.90	6.1	19.5
B Ltd	80,000	1.28	29.20	3.4	24.0
C Ltd	100,000	0.90	21.70	5.7	17.5
D Ltd	125,000	1.50	31.40	3.3	23.0

The current market return is 19% a year and treasury bill yield is 11% a year. Required:
On the basis of the data given above, calculate the risk of Butere Sugar Company Ltd."s short-terminvestment portfolio relative to that of the market. (6 marks)

(Total: 20 marks)

QUESTION FOUR

(a) Discuss the role of financial management in an international setting with particular reference to:
(i) Currency exchange rates. (4 marks)
(ii) Sources of finance (4 marks)
(iii) Investing in overseas countries. (4 marks)

(b) A Kenyan import-export merchant was contracted on 31 December 2002 to buy 1,500 tonnes of a certain product from a supplier in Uganda at a price of Ush.118,200 per tonne. Shipment was to be made direct to a customer in Tanzania to whom the merchant had sold the product at TSh.462,000 per tonne. Of the total quantity, 500 tonnes were to be shipped during the month of January 2003 and the balance by the end of the month of February 2003. Payment to the suppliers was to be made immediately on shipment, whilst one month"s credit from the date of shipment was allowed to the Tanzanian customer.

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The merchant arranged with his bank to cover those transactions in Kenya shillings (Ksh.) on the forward exchange market. The exchange rates at 31 December 2002 were as given below:

	Ush.	TSh.
Spot	22.85 – 23.20	17.14 – 17.18
1 month forward	1.50 – 1.30 discount	2.50 – 1.50 premium
2 months forward	1.65 – 3.85 discount	4.00 – 3.00 premium
3 months forward	3.75 – 7.00 discount	6.50 – 5.50 premium

The exchange commission is Ksh.10 per Ksh.1,000 (maximum Sh.1,000,000) on each transaction. Required:
Calculate (to the nearest Ksh.) the profit that the merchant made during the transaction.

(8 marks)
(Total: 20 marks)

QUESTION FIVE

(a) Explain two circumstances under which dilution of earnings might be acceptable to the shareholders of one of the companies in a take-over deal. (4 marks)

(b) What are the advantages and disadvantages of a rights issue from the point of view of:
   (i) The issuing company? (3 marks)
   (ii) The shareholders? (3 marks)

(c) The six-months cash forecast for Ken Electricals Ltd., which manufactures household electrical goods shows that, unless drastic action is taken, the company will be in a serious liquidity problem. It is decided that outlay on all types of expenditure must be reduced without significantly affecting the forecast sales.
Select six headings of expenditure where you consider economies could be made, and describe how you would achieve savings in these areas. (10 marks)

(Total: 20 marks)

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DECEMBER 2011

QUESTION ONE

(a) In an effort to lower its debtor balances, Zen Manufacturing Ltd. is considering switching from its no discount policy to a 2% discount for payment by the fifteenth day. It is estimated that 60% of Zen"s customers would take the discount and the average collection period is expected to declinefrom 60 days. Company officials project a 20,000 unit increase in annual sales to 220,000 units at the existing price of Sh.2,500 per unit. The variable cost per unit is Sh.2,100 and the average cost per unit is Sh.2,300.

If the firm requires a 15% return on investment, should the discount be offered? (11 marks)

(b) The new credit manager of Kay"s Departmental Store plans to liberalise the firm"s credit policy. The firm currently generates credit sales of Sh.575,000,000 annually. The more lenient credit policy is expected to produce credit sales of Sh.750,000,000. the bad debt losses on additional sales are projected to be 5 per cent despite an additional Sh.15,000,000 collection expenditure. The new credit manager anticipates production and selling costs other than additional bad debt and collection expenses will remain at the 85 per cent level. The firm is paying tax at 30% tax bracket, after deductible allowances.

Required:

If the firm maintains a debtors turnover of 10 times, by how much will the debtors balance increase? (2 marks)

What would be the firm"s incremental return on investment? (5 marks)

Assuming additional stocks of Sh.35,000,000 are required to support the additional sales, compute the after tax return on investment. (2 marks)

(Total: 20 marks)

QUESTION TWO

(a) The purpose of long-term foreign exchange management is not to cover a given foreign exchange exposure by dealings on the forward markets, but to minimize and, if possible, eliminate such exposures before they become critical and therefore costly to cover. (Source: Havard Business Review – March/April 1977)

Comment on the above statement and suggest what actions the financial manager should take in both the long and short term in order to reduce risks from foreign currency transactions. (14 marks)

(b) Your company is proposing to erect a new factory in a foreign country at a cost of 20 million local currency units. Return cash flows will amount to 27 million local currency units per annum and will be spread over five years.

What actions would you take to preserve the profitability of this venture in terms of your home currency? (6 marks)

(Total: 20 marks)

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QUESTION THREE

The finance director of Benga Ltd. wishes to find the company"s optimal capital structure. The cost of debt varies according to the level of gearing of the company as follows:

Percentage debt	**Pretax cost of debt**
10	6.5%
20	7.1%
30	7.8%
40	8.5%
50	10%
60	12%
70	15%

The company"s ungeared equity beta (asset beta) is 0.85. The risk free rate is 6% per annum and the market return is 14% per annum. Corporate taxation is at the rate of 30% per year.

Required:

(a) Estimate the company"s optimal weighted average cost of capital. (10 marks)

(b) Recommend whether or not the company should adopt the optimal capital structure identified in (a) above explain the factors that might influence the capital structure decision. (10 marks)

(Total: 20 marks)

QUESTION FOUR

(a) Goldstar Manufacturing Limited is evaluating an investment opportunity that would require an outlay of sh.100 million. The annual net cash inflows are estimated to vary according to economic conditions.

Economic conditions	Probability	Cash flow **Sh. million**
Very good	.10	35
Good	.45	28
Fair	.30	24
Poor	.15	18

The firm"s required rate of return is 14 percent. The project has an expected life of six years.

Required:

Compute the expected net present value (NPV) of the proposed investment. (5 marks)

(b) Pwani Limited is planning advertising campaigns in three different market areas. The estimates of probability of success and associated additional profits in each of the three markets are provided below:

	Market 1		Market 2		Market 3	
	Profit **Sh.**	Profitability **Sh.**	Profit **Sh.**	Profitability **Sh.**	Profit **Sh.**	Profitability **Sh.**
Fair	10,000	.40	5,000	.20	16,000	.50
Normal	18,000	.50	8,000	.60	20,000	.30
Excellent	25,000	.10	12,000	.20	25,000	.20

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Required:

(i) Compute the expected value and standard deviation of profits resulting from advertising campaigns in each of the market areas. (5 marks)

(ii) Rank the three markets according to riskiness using the coefficient of variation. (2 marks)

(c) Rugongo Ltd. is an ungeared company operating in the processed food industry. The company is planning to take over Sauce Ltd. but is unsure on how to value its net assets. Rugongo Ltd."s analysts have assembled the following information:

1. Sauce Ltd."s balance sheet as at 30 September 2003

	Sh."000"	Sh."000"
Fixed assets		140,000
Current assets:		
Stock	40,000	
Debtors	80,000	
Cash	-	
Current liabilities:		
Creditors	100,000	
Bank overdraft	30,000	
Net current assets		(10,000)
		130,000
Financed by:		
Issued share capital (Sh.10 par value)		100,000
Profit and loss account		30,000
Shareholders funds		130,000

In its most recent trading period ended 30 September 2003, Sauce Ltd."s sales were Sh.500,000,000, but after operating costs and other expenses including a depreciation charge of Sh.20,000,000, its profit after tax was Sh.20,000,000. This figure includes an extraordinary item (sale of property) of Sh.5,000,000. The full years dividend was Sh.5,000,000.

Sauce Ltd. has recently followed a policy of increasing dividends by 12% per annum. Its shareholders require a return of 17%.

The price earnings ratio of Rugongo Ltd. is 14 times and that of Sauce Ltd. is 8 times.

More efficient utilization of Sauce Ltd."s assets could generate operating savings of Sh.5,000,000 per annumafter tax.

Required:

(i) Current market value of Sauce Ltd."s share. (2 marks)

(ii) Explain why the market value might differ from the book value. (2 marks)

(iii) A company experiencing ordinary growth, has high liquidity and much unused borrowing capacity. (2 marks)

(iv) The value of Sauce Ltd. using the discounted cash flow method. (2 marks)

(Total: 20 marks)

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QUESTION FIVE

(a) For each of the companies described below, explain which one you would expect to have a medium, high or a low dividend payout ratio:

(i) A company with a large proportion of inside ownership, all of whom are high income individuals. (1 mark)

(ii) A growth company with an abundance of good investment opportunities. (1 mark)

(iii) A company experiencing ordinary growth, has high liquidity and much unused borrowing capacity. (1 mark)

A dividend-paying company that experiences an unexpected drop in earnings from the trend. (1 mark)

A company with volatile earnings and high business risk. (1 mark)

(b) Highlight the limitations of the following methods of dealing with risk in capital budgeting:

(i) Simulation analysis. (3 marks)

(ii) Sensitivity analysis. (3 marks)

(c) The following data currently exist for the ordinary shares of four companies quoted on a stock exchange for the period between 1 July 1998 to 1 July 2003.

Ordinary shares	**Total number of shares**	Market price **1 July 1998 Sh.**	Market price **1 July 2003 Sh.**	Percentage **Change in price %**
Mashambani	60,000,000	30	45	50
Viwandani	20,000,000	45	80	70
Uchukuzi	90,000,000	25	85	240
Huduma	50,000,000	65	70	8

During the same time period (1 July 1998 to 1 July 2003), the four companies:
Issued no additional shares
Had no stock dividends or split
Paid no cash dividend.

Required:

(i) A four-stock index that is value-weighted. (3 marks)

(ii) A four-stock index that is price-weighted. (3 marks)

(iii) A four-stock index that is equally weighted. (3 marks)

(Total: 20 marks)

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JUNE 2012

QUESTION ONE

The Moon Company Ltd. has issued 10,000,000, Sh. 10 par equity shares which are at present selling for Sh. 30 per share. It has also issued 5,000,000 warrants, each entitling the holder to buy one equity share. The warrants are protected against dilution.

(a) The company has plans to issue rights to purchase one new equity share at a price of Sh. 20 per share for every four shares held.

Required:

(i) Calculate the theoretical ex-rights price of Moon Company Ltd."s equity shares. (1 mark)

(ii) The theoretical value of a right of the Moon Company Ltd. before the shares sell ex-rights. (2 marks)

(b) The chairman of the company receives a phone call from an angry shareholder who owns 100,000 shares. The shareholder argues that he will suffer a loss in his personal wealth due to this rights issue, because the new shares are being offered at a price lower than the current market value.

The chairman assures him that his wealth will not be reduced because of the rights issue, as long as the shareholder takes appropriate action.

Required:

(i) Explain whether the chairman is correct. What should the shareholder do? (2 marks)

(ii) A statement showing the effect of the rights issue on this particular shareholder"s wealth, assuming:

- He sells all the rights.
- He exercises one half of the rights and sells the other half.
- He does nothing at all. (6 marks)

(iii) Are there any real circumstances which might lend support to the shareholder"s claim? (3 marks)

(c) As a senior financial analyst of an investment bank, you are charged with the responsibility of estimating the expected returns of various securities. One o the securities you want to estimate is expected return in Alpha Steel works Ltd.

You have decided to use arbitrage pricing model and you have derived the following estimates for the factor betas and risk premiums.

Factor	Beta	Risk premiums %
1	1.2	2.5
2	0.6	1.5
3	1.5	1.0
4	2.2	0.8
5	0.5	1.2

Required:

(i) Identify the risk factor for Alpha Steel Works Ltd. (2 marks)

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(ii) If the risk free rate is 5%, estimate the expected return on Alpha Steel Works Ltd. (2 marks)

(d) On the basis of a one-factor model, Mwangi assumes that the risk free rate is 6% and the expected return on a portfolio work unit sensitivity to the factor is 8.5%. Consider a portfolio of two securities with the following characteristics:

Security	Factor sensitivity	Proportion
A	4.0	0.3
B	2.6	0.7

According to the arbitrage pricing theory, what is the portfolio"s equilibrium expected return?(2 marks)

(**Total: 20 marks**)

QUESTION TWO

(a) The management of Wambu Limited wants to make a decision whether to change its policy of purchasing raw material stocks.

The current policy is to purchase raw materials monthly, on the last day of each month, for consumption in the following month. Suppliers are paid at the end of the following month – purchases at the end of January would be paid for at the end of February.

The proposed policy is to purchase raw materials every 3 months; suppliers would then allow an extra 2 months" credit. The extra cost of stockholding under the proposed policy would be Sh.600,000 per annum.

The decision about which policy to adopt will be made in time to affect purchases at the end of December 2004, when the cost of materials for January 2005 would be Sh. 20,000,000.

A growth rate of 0.75% per month is expected in purchases into the indefinite future from January 2005 onwards.

The cost of capital is 1% per month compound.

Required:

Which policy should be preferred? (ignore taxation) (10 marks)

(b) You have just finished reading the budget speech by the Minister of Finance where you came across the term "Public Sector Borrowing Requirements." What is meant by this term? (3 marks)

(c) The Minister for Finance has stated that he wants to put a limit to the Public Sector Borrowing Requirements. What difficulties and economic problems are likely to arise due to this? (7 marks)

(**Total: 20 marks**)

QUESTION THREE

Bara Ltd. is contemplating a bid for the share capital of Pwani Ltd. with an intention of buying the whole company. The following data for the two companies have been provided.

	Bara Ltd.	**Pwani Ltd.**
Number of shares	3,000,000	8,000,000
Share price	Sh. 150	Sh. 30
Latest equity earnings	Sh. 675 million	Sh. 80 million

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After acquisition, Bara Ltd. intends to sell a division of Pwani Ltd. which accounts for Sh.20 million annually in equity earnings. The division does not form part of the core business of the intended group. The division has a current market price of Sh. 50 million.

Bara Ltd."s management believes that by introducing better management, earnings of Pwani Ltd. could be permanently increased by 25% although the price/earnings multiple will remain the same. To avoid duplication, some of Bara Ltd."s own property could be disposed of at an estimated price of Sh. 130 million. Rationalisation costs are estimated at Sh. 100 million, these comprise retrenchment and legal costs among others.

Required:

(a) Highlight the advantages of growth by acquisition. (6 marks)

(b) Calculate the effect on the current share price of each company, all other things being equal, of a two for ten share offer by Bara Ltd., assuming that Bara Ltd."s estimates are in line with those of the market. (10 marks)

(c) Assume that Bara Ltd. is proposing to offer Pwani Ltd."s shareholders the choice of a two for ten share exchange or a cash alternative. Giving reasons, advise Bara Ltd. whether the cash alternative should be more or less that the current value of the share exchange. (4 marks)

(**Total: 20 marks**)

QUESTION FOUR

(a) The Better Shoe Company is considering a major investment in a new product area, novelty umbrellas. It hopes that this product will become a fashion icon. The following information has been collected:

1. The project will have a limited life of 11 years.
2. The initial investment in plant and machinery will be Sh. 10 million and a marketing budget of Sh. 2 million will be allocated to the first year.
3. The net cash flows before depreciation of plant and machinery and before marketing expenditure for each umbrella will be Sh. 100.
4. The products will be introduced both in Kenya and Uganda.
5. The marketing costs in years 2 to 11 will be Sh. 5 million per annum.
6. If the product catches the imagination of the customers in both countries, then sales in the first year are anticipated at 1 million umbrellas.
7. If the fashion press ignores the new products in one country but become enthusiastic in the other, sales ill be 700,000 umbrellas in year 1.
8. If the marketing launch is unsuccessful in both countries, first year sales will be 200,000 umbrellas.

   The probability of each of these events occurring is:

1 million sales	=	0.3
0.7 million sales	=	0.4
0.2 million sales	=	0.3

9. If the first year is successful in both countries then two possibilities are envisages.

- Sales levels are maintained at 1 million units per annum for the next 10 years – probability of 0.3.
- The product is seen as a temporary fad and sales fall to 100,000 units for the remaining 10 years – probability of 0.7.

10. If success is achieved in only one country in the first year, then for the remaining 10 years there is:

    - A 0.4 probability of maintaining the annual sales at 700,000 units and
    - A 0.6 probability of sales immediately falling to 50,000 units per year.

If the marketing launch is unsuccessful in both countries, the production will cease and the project will be scraped with zero value. The annual cash flows and marketing costs will be payable at each year end.

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Assume:

- Cost of capital is 10 per cent per annum.
- No inflation or taxation.
- No exchange rate charges.

Required:

(i) Calculate the expected net present value for the project. (7 marks)

(ii) Calculate the standard deviation for the project. (5 marks)

(iii) If the project produces a net present value of less that Sh. 10 million, the directors fear that the company will be vulnerable to a hostile takeover. Calculate the probability of the firm avoiding a hostile takeover. Assume normal distribution. (3 marks)

(b) As a firm operating in a mature industry, Orchard Farms is expected to maintain a constant dividend pay out ratio and constant growth rate of earnings for the foreseeable future. Earnings were Sh. 4.50 per share in the recently completed fiscal year. The dividend pay out ratio has been a constant 55% in recent years and is expected to remain so. Orchard Farms" return on equity (ROE) is expected to remain at 10% in the future, and you require an 11% return on the stock.

Required:

(i) Using the constant dividend growth model, calculate the current value of Orchard Farms" share. (2 marks)

(ii) After aggressive acquisition and marketing programme, it now appears that Orchard Farms" earnings per share and ROE will grow rapidly over the next two years. Assuming the Orchard Farms"dividend will grow at a rate of 15% for the next two years, returning in the third year, to the historical growth and continuing at the historical rate of the foreseeable future.

Calculate Orchard Farms" current market rate. (3 marks)(**Total: 20 marks**)

QUESTION FIVE

(a) The financial manager of Town Ltd. is concerned about the volatility of interest rates. His company needs to borrow Sh. 100 million in six months time for a period of two years. Current interest rates are 15% per year for the type of loan that Town Ltd. needs. The financial manager does not wish to pay an interest rate higher than this. He is considering using different alternatives. For the following four alternatives, briefly explain how each could be useful to the financial manager:

(i) Forward rate agreement. (2 marks)

(ii) Interest rate futures (2 marks)

(iii) Interest rate options. (2 marks)

(iv) Interest rate swaps. (2 marks)

(b) (i)What assumption underlie the capital asset pricing model (CAPM)? (5 marks)

(ii) Many of the underlying assumptions of CAPM are violated in the real world. Does that fact invalidate the model"s conclusions? Explain. (4 marks)

(c) The managing director of Bicdo Ltd., a company quoted on the Nairobi Stock Exchange (NSE) has asked you to assist in estimating the firm"s equity beta co-efficient. The firm is all equity financed and listed in the NSE five years ago. You have gathered the following information from the NSE for the last four years:

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Bicdo Ltd.			Nairobi Stock Exchange		
Year	Average share Price Sh.	Dividend per share Sh.	Average NSE index	NSE Dividend yield %	Return on Government stock %
2000	69.5	3.5	2,600	3	7
2001	73.5	4.25	2,990	5	9
2002	81.5	4.5	3,040	5.5	8
2003	92.5	5.0	3,280	5.5	8

Required:

Use the capital asset pricing model (CAPM) to estimate the beta of Bicdo Ltd. (3 marks)

(**Total: 20 marks**)

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DECEMBER 2012

QUESTION ONE

(a) As an expert in the financial management of public projects, you have been requested to present a seminar paper on "Project Management in the Public Sector; challenges and dilemmas."

Required:

Explain the main issues you would address in your paper under the following headings:

(i) Phases of a public project. (4 marks)
(ii) Planning and control techniques for a public project. (4 marks)
(iii) Causes of failure of public projects. (2 marks)

(b) Savanna Limited has a cost of equity of 10%. Currently it has 250,000 ordinary shares which are quoted at the Stock Exchange of Sh. 120 per share. The company"s earnings per share is Sh. 10 and it intends to maintain a dividend payout ratio of 50% at the end of the current financial year.

The expected net income for the current year is Sh. 3 million and the available investment proposals are estimated to cost Sh. 6 million.

Required:

(i) Using the Modigliani and Miller (MM) model, show that the payment of dividends does not affect the value of the firm. (8 marks)
(ii) What are the assumptions inherent in the MM model? (2 marks)

(Total: 20 marks)

QUESTION TWO

(a) "Total Risk Management (TRM) will become a common term in finance just like Total Quality Management (TQM) has in production and marketing." (Professor Andrew W. Lo. 1999).

Required:

(i) Define risk management as used in finance. (2 marks)
(ii) Discuss reasons why risk management might increase shareholders wealth. (8 marks)

(b) Kasuku Limited has set aside Sh. 40 million for investments as on 1 January 2004. Five proposals are presented to the company"s board of directors by the finance manager as shown below:

Project	Initial cost Sh. „000"	Annual revenue Sh. „000"	Annual fixed costs Sh. „000"	Life of project (years)
A	10,000	20,000	5,000	3
B	30,000	30,000	10,000	5
C	15,000	18,000	6,000	4
D	12,000	17,000	8,000	10
E	18,000	8,000	2,000	15

Additional information:

1. Projects D and E are mutually exclusive.
2. Each project is divisible and can only be undertaken once.
3. Variable costs are 40% of annual revenue.
4. All cash flows will occur at the end of the year commencing 31 December 2004.
5. Cost of capital is 10% (ignore tax).

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Required:

i. Determine the optimal allocation of the Sh. 40 million amongst the five projects. (8 marks)
ii. What is the net present value resulting from this allocation? (2 marks)

(Total: 20 marks)

QUESTION THREE

(a) The board of directors of Masii Limited is divided on whether to adopt a high or low dividend payout policy. One of the directors has quoted the „dividend discount model" as proof that the „higher the dividends, the higher the share price."

Required:

(i) Highlight two arguments for and against a high dividend payout policy. (4 marks)
(ii) Using a constant growth dividend discount model, evaluate the director"s statement. (6 marks)

(b) Leo Plastics Limited is an all equity financed company. It had three strategic business divisions as on 1 January 2004:

1. **The Polythene division**
   It has a capital of Sh. 8 million and is expected to produce returns of 11% on capital for the next five years. Thereafter, it will produce returns equal to the required rate of return of 14% for its risk level.

2. **The Paper division**
   It has a capital of Sh. 12 million and a planning horizon of 10 years. During this planning horizon, it will produce a return of 12% on capital compared with a risk adjusted required rate of return of 15%.

3. **The Container division**
   It has a capital of Sh. 12 million and a planning horizon of 7 years. The required rate of return on capital is 16% compared with the anticipated actual rate of 17% over the first seven years.

Required:
Calculate the present value of the company as on 1 January 2004. (10 marks)

(**Total: 20 marks**)

QUESTION FOUR

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

Required:
Identify and elaborate on five factors that complicate financial management in multi-national firms. (10 marks)

(b) Highspeed Electronics Limited 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 Limited has been granted three months credit. Assume that interest rates in America are 3% per quarter (three months). Highspeed electronics Limited has all its money tied up in its operations but it could borrow in dollars at 3% per quarter if necessary.

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Foreign exchange rates

	US$ =	Sh. 1
Spot		0.013
Three month forward		0.0154

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

Required:

(i) Using suitable computations, illustrate two hedging strategies available to Highspeed Electronics Limited. (8 marks)

(ii) Distinguish between a currency option and a currency swap. (2 marks)

(**Total: 20 marks**)

QUESTION FIVE

(a) With reference to the measurement of portfolio risk, distinguish between Portfolio theory and the Capital Asset Pricing Model (CAPM). (4 marks)

(b) The following details relating to Bidii Limited show how the level of gearing affects the company"s cost of debt.

Gearing level (%):	10	20	30	40	50	60	70
Pre-tax cost of debt (%):	6.5	7.1	7.8	8.5	10	12	15

Required:

Determine the company"s optimal capital structure. (6 marks)

(c) The investment portfolio of Mapeni Limited consists of shares in five companies operating in different industries.

Company	Amount Invested (Sh. million)	Stock beta Coefficient
A Ltd.	160	0.5
B Ltd.	120	2.0
C Ltd.	80	4.0
D Ltd.	80	1.0
E Ltd.	60	3.0

The risk free rate (R_f) is 8%. The market returns have the following probability distribution for the next period.

Market return %	Probability
10	0.1
12	0.2
13	0.4
16	0.2
17	0.1

Required:

(i) Compute the expected return from the market (R_m). (2 marks)

(ii) Calculate the beta coefficient for the portfolio (β_p). (4 marks)

(iii) Determine the equation for the security market line. (4 marks)

(**Total: 20 marks**)

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June 2013

Question One

a) Creation of shareholder value has become a generally accepted corporate objective. To facilitate the realization of this objective, value based management systems (VBMs) which integrate finance theory and strategic management thinking have been developed by scholars.

Required:

i) Explain the main determinants of shareholder value (6 marks)

ii) Discuss tile factors that have stimulated the increased interest by companies in value based management systems (8 marks)

b) Madawa Company Limited, a public quoted company, intends to raise additional share capital through a rights issue. The number of issued ordinary shares currently stands at 100 million shares. Each shareholder will have a right to purchase one share for every five shares currently held. The current market price per share is Sh.60 while the rights price has been fixed at Sh.50 per share.

Required:

i) Calculate the theoretical value of a right in Madawa Company Limited (2 marks)

ii) Determine the theoretical ex-rights price of a share in the company (4 marks)

(Total: 20 marks)

Question Two

Ridges Company Ltd. is the process of preparing its capital budget for the financial year ending 30 June 2005. The company"s capital structure as at 1 July 2004 and which the management considers as optimal ispresented below:

	Sh. Million
Ordinary share capital (Sh.20 par)	100
Preference share capital (Sh.10 par)	160
Share premium	150
Retained earnings	550
Long term debt	640

The following additional information is available:

1. The company can borrow a Sh.200 million long to on loan at a pre-tax cost 13. Any additional debt can be obtained at a pre-tax cost of 16%.
2. The company can raise Sh.400 million through a bond issue. Each bond will have a face value of Sh.1,000 but will be issued at Sh.687. The coupon rate on the bonds will be 10% with maturity period of twenty years.
3. Preferred stock can be-issued at a pre-tax cost of 16.5%.
4. The company expects to generate Sh.700 million in net income before tax for the year ending 30 June 2005
5. The average annual growth rate in dividends is 5.5% and this rate is expected to continue into the foreseeable future. The company expects to pay an ordinary dividend per share of Sh.10 for the year ending 30 June 2005.
6. The following investment proposals will be available to the company in the year ending 30 June 2005.

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Project	Outlay (Sh.million)	Internal rate of return (IRR)
A	700	17%
B	650	16%
C	500	15%
D	400	14.2%
E	120	13%
F	80	10.9%

7. Assume a corporation tax rate of 30%

Required:

a) Determine the cost of capital for each of the following sources of finance:

i) Long-term loan (2 marks)
ii) Bonds (2 marks)
iii) Additional Debt (2 marks)
iv) Preference share capital (2 marks)
v) Retained earnings (2 marks)

b) Using the marginal cost of capital (MCC) and internal rate of return (IRR) schedules, determine the investment project(s) that should be accepted for the year ending 30 June 2005. (10 marks)

(Total: 20 marks)

Question Three

a) Briefly explain the importance of sensitivity analysis, with specific reference to investment appraisal under uncertainty.

b) A company is considering whether it is necessary to purchase equipment to increase its production and sales volumes. The equipment costs Sh.500,000 and has a useful life of three years after which it can be sold as scrap for Sh.80,000. For each of the three years of usage, the equipment is expected to increase both sales revenue and operating costs by Sh.600,000 and Sh.390,000 respectively. The company's cost of capital is 10%

Required:

i) Calculate the project"s net present value (NPV) (2 marks)
ii) Compute the percentage changes required in the cost of the equipment, the scrap value and the sales revenue for the project to be rejected. (6 marks)

c) Mr. Charles Kabazi has a capital of Sh.1,000,000 which he wishes to invest in three sectors of the economy; agriculture, service and manufacturing. The funds will be allocated as follows:

Sector	Amount invested Sh.
Agriculture	400,000
Service	200,000
Manufacturing	400,000

Details on the possible future economic states, their probabilities of occurrence and the expected return for each of the sectors are presented below:

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Possible Future	Probability of Occurrence	Expected return for each sector (%)		
Economic state		Agriculture	Service	Manufacturing
Recession	0.1	16	14	3
Average	0.4	14	19	5
Boom	0.5	20	22	6

Required:

i) Determine the risk associated with the investment in each of the three sectors above. (6 marks)
ii) Determine the expected portfolio return (2 marks)
(Total: 20 marks)

Question Four

a) Distinguish between the residual dividend theory" and clientele preference theory as they relate to dividend policy formulation. (4 marks)
b) Discuss the Modigliani and Miller"s (MM) dividend irrelevancy proposition (10 marks)
c) Huge Ltd. is contemplating a complete share acquisition of Tiny Ltd. Huge Ltd is offering three of its shares for every two shares of Tiny Ltd. The data is relating to the two companies are shown below:

	Huge Ltd	**Tiny Ltd**
	Sh.	**Sh.**
Earnings to ordinary shareholders	5,190,360	2,340,000
Earnings per share (EPS)	14.80	29.25
Market price per share (MPS)	222	322

The corporate tax rate is 30%

Required:

i) Determine the maximum offer price that will not dilute the EPS of Huge Ltd. (2 marks)
ii) Compute the premium payable to the shareholders of Tiny Ltd (2 marks)
iii) Given that the growth rate of Huge Ltd. is 8% while that of Tiny Ltd is 12%, compute the combined growth rate of the two companies (2 marks)
(Total: 20 marks)

Question Five

a) Define the following types of foreign currency risk exposure:

i) Transaction exposure (2 marks)
ii) Translation exposure (2 marks)
iii) Economic exposure (2 marks)

b) Explain two ways in which a firm can hedge against a currency transaction exposure (6 marks)

c) Cotts Importers Ltd, a company based in Kenya, has been a regular importer of goods from the United States of America (USA). The Kenyan currency is the Shilling (Sh.) while the USA currency is the dollar ($)

ON 1 June 2004, Cotts Ltd imported a consignment of goods from a supplier in the USA. The consignment cost $1,000 and was payable on 1 September 2004.

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The spot rates on 1 June and 1 September 2004 were as follows:

	$/Sh.
1 June	0.007
1 September	0.006

September 2004 shilling futures were trading at $0.00625/Sh (contract size Sh.1,194,000) as at 1 June 2004.

Required:

i) Show how Cotts Ltd could have used a futures contract as a hedging tool, indicating any hedging profit or loss. (6 marks)

ii) How many futures contracts would Cotts Ltd. have purchased if the contract size was Sh.2 million? (2 marks)

(Total: 20 marks)

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December 2013

Question One

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 in 7% debentures
3. The annual earnings before interest and tax are Sh.10million 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. (6 marks)
ii) The weighted average cost of capital of A Ltd and B Ltd. (4 marks)

b) Proton Ltd. has a capital structure consisting of Sh.250 million in 12% debentures and Sh.150 million in ordinary shares of Shs.10 par value. The company distributes all its net earnings as dividends.

The finance manager of Proton Ltd. intends to raise an additional Sh.50million to finance an expansion programme and is considering three financing options.

Option one: Issue an 11% debenture stock
Option two: Issue 13% cumulative preference shares
Option three: Issue additional ordinary shares of Sh.10 par value.

The coporation tax rate is 30%.

Required:

Calculate the earnings before interest and tax (EBIT) and the earnings per sharee (EPS)at the point of indifference between the following financing options:

i) Option one and option three (6 marks)
ii) Option two and option three (4 marks)

(Total: 20 marks)

Question Two

a) Distinguish between one-period rationing and „multi-period rationing" with specific reference to capital rationing (4 marks)

b) The management of Dawanu Ltd. is evaluating five investment projects whose expected cash flows are shown below:

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Project	1 January 2006	31 December 2006	31 December 2007	31 December 2008
	Sh „000"	Shs „000"	Sh. „000"	Sh. „000"
A	(60,000)	30,000	25,000	25,000
B	(30,000)	(20,000)	25,000	45,000
C	(40,000)	(50,000)	60,000	70,000
D	0	(80,000)	45,000	55,000
E	(50,000)	10,000	30,000	40,000

Additional Information:

1. None of the five projects can be delayed or bought forward.
2. All the projects are divisible
3. The required rate of return on investments is 15%

Required:

i) Using the net present value (NPV) approach, determine which project(s) should be undertaken assuming capital will be available when required. (8 marks) ii) Using the NPV approach, determine which project(s) should be undertaken assuming capital available on 1 January 2006 is limited to Sh.100 million (8 marks)

(Total: 20 marks)

Question Three

a) With the help of a diagram between an efficient portfolio and an optimum portfolio (6 marks)

b) Mr. K. Patel has an investment capital of Sh.1,000,000. He wishes to invest in two securities, A and B in the following proportion; Sh.200,000 in security A and Sh.800,000 in security B.

The returns on these two securities depend on the state of the economy as shown below:

State of Economy	Probability	Returns on Security A	Returns on Security B
Boom	0.4	18%	24%
Normal	0.5	14%	22%
Recession	0.1	12%	21%

Required:

i) Compute the expected portfolio return (2 marks)
ii) Determine the correlation coefficient between security A and security B (6 marks)
iii) Calculate the portfolio risk (2 marks)
iv) Calculate the reduction in risk due to portfolio diversification (4 marks)

(Total: 20 marks)

Question Four

a) In the context of international financial management:

i) Distinguish between Euronotes and Eurobonds. (4 marks)ii) Explain the factors which influence the decision on whether to borrow in a domestic currency or in a foreign currency. (6 marks)

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b) Describe the main types of agency relationships in financial management indicating the potential areas of conflict of interest (10 marks)

(Total: 20 marks)

Question Five

a) Securitisation may be the wave for the future, as it appears to be a more efficient mechanism for bringing borrowers and investors together than traditional financing through intermediaries (Fabozzi and Modigliani).

Required:

i) Explain the term "securitisation". (4 marks)

ii) Discuss the benefits that may accrue to a company that uses securitisation in preference to traditional financing through intermediaries. (6 marks)

b) The management of Viwanda Ltd. is in the process of evaluating the company"s dividend policy.

The following information is provided:

1. The company paid Sh.1.2 million as dividends in the last financial year.
2. The profit after tax for the last financial year was Sh.3.6 million.
3. The company has not issued any preference shares
4. The earnings growth rate has been consistent at 10% per annum for the past ten years.
5. The expected profit after tax for the current financial year is Sh.4.8 million
6. The company anticipates investment opportunities worth Sh.1.4 million in the current financial year.
7. The capital structure of the company consists of sixty per cent equity and forty per cent debt.

Required:

Determine the optimal total dividends for the current financial year if the company wishes to adopt each of the following independent dividend policies

i) Pure residual policy (2 marks)

ii) Constant payout ratio policy (2 marks)

iii) Stable predictable dividend policy, the growth rate being equivalent to the earnings growth rate. (2 marks)

iv) Regular plus extra dividend policy. The regular dividends would be based on the long run growth rate of earnings while the extra dividends would be based on the residual income (4 marks)

(Total: 20 marks)

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ANSWERS - PAST PAPERS

SUGGESTED SOLUTIONS TO THE PAST PAPER QUESTIONS

JUNE 2008 - DECEMBER 2013

JUNE 2008

SUGGESTED SOLUTIONS

QUESTION ONE

a) The practical applications of capital asset pricing model (CAPM) are as follows:

Determination of cost of capital e.g. cost of equity Ke = Rf + (Rm – Rf)Be

Where:
Be = equity beta factor
Valuation of securities by comparing the expected and required returns if ER > Required return then the security is undervalued.
Capital budgeting decision is appraising the projects in terms of betas
Gearing adjustment between levered and unlevered firm.

b) The risk of the portfolio in this case will be measured by portfolio Beta (Bp) relative to market portfolio beta.

$$Bp = \sum_{t=1}^{n} B_n W_n$$

Where w_n = weight based on market values of shares.

Share	Market value in Sh.M		Weight
A	20,000 shares @ Sh.65	= 1.30	0.23
B	30,000 shares @ Sh.50	= 1.50	0.26
C	30,000 shares @ Sh.45	= 1.35	0.23
D	20,000 shares @ Sh.80	= 1.60	0.28
		5.75	

Weight	Beta	Weighted Beta
0.23	1.12	0.26
0.26	0.89	0.23
0.23	0.70	0.16
0.28	1.60	0.45
Portfolio/overall Beta		1.10

c) Compute the required return using CAPM and compare with expected returns to determine whether the securities are over or undervalued.

% required return = Rf + (Rm – Rf)Beta

Security	% required return	%ER(given)	Comment
A	9% + (5 x 1.12) = 14.6%	18%	Undervalued hence buy more
B	9% + (5 x 0.89) = 13.45%	23%	Undervalued – buy more

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C	9% + (5 x 0.7) = 12.5%	11%	Overvalued – sell
D	9% + (5 x 1.60) = 17.0%	17%	Correctly valued = hold

Change the composition of the portfolio since:

Some securities (A&B) are
undervalued Security C is overvalued
4 securities are too few to constitute a portfolio and fall eliminate unsystematic risk

QUESTION TWO

a) In presence of agency and bankruptcy costs: $V_L = V_u + T.D – P.V$ of A.C & B.C

Where:

V_L = Value of levered firm V_u
= Value of unlevered firm
TD = debt tax shield = debt x tax rate
A.C & B.C = Agency costs & Bankruptcy costs.

Debt level	Tax shield (T.D)	A.C & B.C	VI = Vu + T.D – P.V of AC & B.C
0	20% x 0 = 0	0.0	30 + 0 – 0 = 30.0
10	20% x 10M = 2 0.0		30 + 2 – 0 = 32.0
20	20% x 20M = 4 0.6		30 + 4 – 0.6 = 33.4
30	20% x 30M = 6 2.4		30 + 6 – 2.4 = 33.6
40	20% x 40M = 8 4.0		30 + 8 – 4.0 = 34.0
50	20% x 50M = 10	6.4	30 + 10 – 6.4 = 33.6
60	20% x 60M = 12	10.0	30 + 12 – 10.0 = 32

Optimal debt level = 40M since the value of the firm is maximised to be 34.0M

b) Discounting rate using CAPM = Rf + (Rm – Rf)Beta = 9% + (14% - 9%)0.8 =

13% Maximum price to pay = Total present value of all expected cash flows.

P.V of year 1 – 5 cash flows		Sh.M
50M x $PVAF_{13\%,5}$ = 50M x 3.517	=	175.850
P.V of year 6 – 10 Cash flows:		
90M($PVAF_{13\%,10}$ - $PVAF_{13\%,5}$) = 90M(5.425 – 3.517)	=	171.810
P.V of year 11 - ∞ cash flows		
130M ($PVAF_{13\%,\infty}$ - $PVAF_{13\%,10}$)		
130(1/0.13 = 7.692 – 5.426)	=	294.580
Maximum price to pay		642,240

QUESTION THREE

(a) Financing options

(i) Warehouse loan

Warehousing costs	350,000
Interest 80%x4,000,000x18%x	288,000

12

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638,000

% cost of discount = $\frac{2}{100 - 2\%} \times \frac{360}{40 - 10}$ = 24.5% p.a

Cost of foregone discount 20%x4,000,000x24.5%x6 / 12 = 98,000

Total cost = 638,000 + 98,000 = 736,000

(ii) Floating lien

Interest charges = 4,000,000x24%x6 / 12 = 480,000

(iii) Bank loan

In presence of compensating balance, the effective interest rate

$= \frac{\text{Nominal interest}}{100\% - \text{Compensating Balance}}$

$= \frac{22\%}{1 - 0.1}$

= 24.44%

Interest charges = 24.44%x4,000,000x 6 / 12 = 488,000

The best option is the floating lien from the supplier.

(b) -During economic boom when liquidity is high, it is difficult to sell the commercial paper.
- It is used only by "blue chip" firms to raise short term capital
- For the lender it is unsecured short term financial instrument
- In Kenya the use of commercial paper to raise short term credit is subject to regulatory restrictions by capital market authority.

QUESTION FOUR

(a) A company may pay a different dividend from another even if their issued capital is the same because of differences associated with:

- Liquidity of each firm – The more liquid the firm, the higher the dividends other things constant.
- Tax position of shareholders e.g shareholders with low income from other sources will prefer high dividends to supplement their income.
- Profitability of the firm – Other factors constant, the higher the profits, the higher the dividends.
- Bond/debt covenants e.g restrictions of payment of dividends from retained earnings.
- Availability of investment opportunities – The more the projects yielding a positive NPV the higher the retained earnings and the lower the dividends.
- Access the capital markets e.g firms which can easily and cheaply secure debt capital can afford to pay high dividends and vice versa.
- Capital structure decisions – If the firm wants to reduce gearing through increase in equity, retained earnings will be increased thus lower dividends paid.
- Level of business risk – Firms with high volatility of earnings will generally pay low dividends (other factors constant) due to uncertainty of profits and reduced ability to borrow.
- Shareholders expectations – If shareholders have been receiving increasing DPS, the firm would persist on this trend since any reverse trend may affect the market value of shares.

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(b) (i) A firm with a large proportion of high income individuals will pay low or no dividends. Such shareholders prefer high capital to reduce their tax burden since capital gains in Kenya are tax exempt.

(ii) A growth company with abundance of good investment opportunities.
Such a firm would pay low and retain more profits to finance its good investment opportunities.

(iii) A company with ordinary growth and high liquidity.
Such a firm could pay high dividends and retain less. With high liquidity and much unused debt capacity, the firm can easily borrow debt capital to achieve optimal debt capital. It has access to capital markets.

(iv) A dividend paying company that experiences an unexpected drop in earnings from trend. Such a firm would pay medium dividends but if the drop in earnings persist in future it should adopt payment of low dividends.

(v) A company with volatile earnings an high business risk.
This firm should pay low dividends and retain more profits to finance its investments. With high business risk, the firm does not have access to capital markets and it is difficult to raise secure debt capital which would nevertheless increase the financial risk of the firm.

QUESTION FIVE

(a) The methods of handling risk in capital budgeting are:

Use of risk-adjusted discounted rate
Certainty equivalent coefficient
Simulation
Sensitivity analysis
Decision trees
Expected monetary value (EMV) approach Payback period method.

(b)

		P.V Sh."000"
Year 1	EMV	
	(10,000 x 0.2) + (6,000 x 0.7) x (2,000 x 0.1) = 6,400	
	PV @ 15% = 6,400 x 0.870	5,568
Year 2	EMV = (12,000 x 0.3) + (8,000 x 0.5) + (4,000 x 0.2) = 8,400	
	PV @ 15% = 8,400 x 0.756	6,350
Year 3	EMV = (16,000 x 0.4) + (12,000 x 0.3) + (6,000 x 0.3) = 11,800	
	PV @ 15% = 11,800 x 0.658	7,764
	Total P.V	19,682
	Less initial capital	(20,000)
	N.P.V	(318)

Reject the investment since NPV is negative.

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DECEMBER 2008
SUGGESTED SOLUTIONS

QUESTION ONE

a) Cost of equity = $\frac{4}{20} \times 100\% = 20\%$

Cost OF Debt = 8%

W.A.C.A.	Market value		Cost		
Equity	200,000,000	x	0.20	=	40,000,000
Debt	50,000,000	x	0.08	=	4,000,000
	250,000,000				44,000,000

WACC = $\frac{44,000,000}{250,000,000} \times 100 = 17.6\%$

OR

W.A.C.C = 0.2 x 8% + 0.8 x 20% = 0.176

b) Cost of equity = Rf + β (Rm – Rf)

0.20 = 0.080 + β (0.16 – 0.08)

β = 1.5

c) Value of the un-geared beta ignoring tax

$$\beta u = \frac{\beta g}{\left(1 + \frac{D}{Veg}\right)} = \frac{1.5}{\left(1 + \frac{50}{200}\right)} = 1.2$$

d) The required return from a project with a, β = 1.25 is 0.08 + 1.25(0.16 – 0.08) = 0.18

The actual return from the project would be:

$\frac{3,800,000}{20,000,000} = 0.19$

- This exceed the required yield of 18% and so the project should be undertaken

Alternatively, NPV of the project = $\frac{3.8}{0.18} - 20M = 1.11$ (+ve NPV)

QUESTION TWO

a) Conceptual differences between Arbitrage Pricing Theory and CAPM.

In APT, return is a function of a set of common factors while in CAPM, return is a function of a market portfolio of risky assets.

APT is a multifactor model that attempts to capture several non-markets influences that cause securities or assets to change in prices. CAPM on the other hand, is a single index model that assume securities or assets change in price because of a common co-movement with one market portfolio of all risky assets.

In application of the theory, the market portfolio or factor required by CAPM is specified. In APT, the common factors are not identified.

APT incorporates a number of sensitivity coefficients. These coefficients determine how each independent variable or macro-economic factor affects each asset. Different assets are affected to different degrees or extents by common factors.

In CPAM, the only sensitivity factor is beta (Systematic risk).

CAPM is a single period model. APT can be extended to multi-period framework

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b) i)

Year	ANITA RC	General index (RM)	Ri-E(Ri)	Rm-E(Rm)	Rm-E(Rm)²	Ri-Eri	(Ri-R)²
1	37	15	27.33	6	36	163.98	746.93
2	9	13	-0.67	4	16	-2.68	0.449
3	-11	14	-20.67	5	25	103.35	427.25
4	8	-9	-1.67	-18	324	30.06	2.79
5	11	12	1.33	3	9	3.99	1.77
6	4	9	-5.67	0	0	0.00	32.15
	58	54			410	92.00	121.34

E(R) of Ri = $\frac{58}{6}$ = 9.67

E(R) of Rm = $\frac{54}{6}$ = 9

δi–> Ri 14.21
δm–> Rm 8.27

Cov im = $\frac{92.00}{6}$ = 15.33

rim = $\frac{\text{Cov im}}{\delta i\ \delta m}$ = $\frac{15.33}{(14.21)(8.27)}$ = 0.13

b) ii)
Beta for Anita computer is:

βi = $\frac{\text{Cov im}}{\delta m^2}$ = $\frac{15.33}{68.33}$ = 0.2244

QUESTION THREE

(a) Fundamental distinction between a futures contract and an option on a futures contract in a manner that futures and options modify portfolio risk.

	Futures		**Options**
-	An obligation/contract	-	A right or option
-	Standardised	-	Flexible
-	Effected only on the maturity date	-	Can be exercised before expiry
-	Requires margins to be deposited with a clearing house	-	Does not required margins

Risk modification futures hedge against all risks by fixing the price in advance while option hedge against the downsize risks.

(b) To hedge against interest rates we can forward contracts options or swaps.

i) To protect against upward movement in interest rates and accompanying downward price movements the company should buy a put option.

ii) Gross gain on option (1-0.95) x 1,000,000 = 50,000
Premium 1½ x 1,000,000 = 15,000
Net gain on option position = 35,000

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iii) Maendeleo would not exercise its put option as it is out of the money. The company would be cut the 15,000 premium paid for the option.

QUESTION FOUR

a)

Project	PI	Ranks	δ/PV of cash flows
A	1.100	5	0.18
B	1.200	2	0.50
C	1.125	4	0.04
D	1.500	1	0.67
E	1.150	3	0.13

$$P.I = \frac{NPV + Cost}{Cost}$$

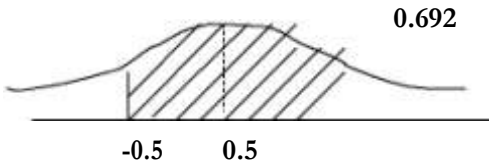
b) On the basis of δ/P.V (amount of risk per unit of P.V)

Project A is clearly dominated by both E and C. Project B by A, C and E. Project C by none. Project D by all other projects. Projects E by C. Size problem should not be ignored.
NB:The lower the δ/P.V, the better the project.

c)

Project	NPV/δ	Probability Greater than	
*A	0.5δ	0.692	B
	0.33δ	0.692	C
	2.5δ	0.994	D
	0.5δ	0.692	E
	1.0δ	0.841	

Note: $ZA = \frac{X-N}{\delta} = \frac{0.1000}{2000} = -0.5$



Note: Use normal distribution tables to find the probability.

QUESTION FIVE

a) Modigliani and Millers would argue that the total value of the companies is independent of the capital structure except to the extent of the tax advantage enjoyed by debt. This is given by the value of debt x tax rate.

The value of the two companies are:

	Shs."000"
KK Limited	
800,000 ordinary shares @140	112,000
KT Limited	
500,000 ordinary shares @170	85,000
Debt	50,000
	135,000

Theoretically the value of KT Ltd. should exceed that of KK Ltd by value of debt x tax rate.

500,000,000 x 30% = 15,000,000.

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The value of KT Ltd exceeds that of KK Ltd by 23,000,000. KT Ltd is therefore over valued as compared to KK Ltd. The investor in KK Ltd can improve his financial position by arbitrage. This will be achieved by:
Selling the holding in KK Ltd.
Borrowing initial personal gearing which is the same as the gearing in the capital structure of KT Limited and Then investing the proceeds in the shares of KK Limited.

b) Income attributable to shareholders in the companies

KK Limited	Shs."000"
EBIT	50,000
Less interest EBT	-
	50,000
Less tax @ 30%	(15,000)
Earnings to ordinary shareholders = dividends	35,000

KT Limited	Shs."000"
EBIT	50,000
Less debenture interest (12% x 50M)	(6,000)
EBT	44,000
Less tax	(13,200)
Earnings to shareholders = dividends	30,800

The investor in KT Limited is currently receiving 4% of that firm"s income i.e 4% x 30,800,000 = 1,232,000.
He should sell the shares in KT Limited realising 85,000,000 x 0.04 = 3,400,000.
He should borrow Sh.1,400,000 (4% x 50M)(1-0.3) to duplicate the gearing of KT Limited and then invest the combined total of 4.8M(3.4M + 1.4M) in KK Ltd.

		Sh"000"
4.8M / 112 x35,000	=	1,500
Less interest on borrowing at 12%x2M	=	240
		1,260

Which is 1260 – 1232 = 28 greater than before.

c) If KK Ltd borrows 40,000,000; Modigliani and Miller would indicate that its values will rise by:-

Value of debt x tax rate
40,000,000 x 30% = 12,000,000

Assuming that the debt replaces equity the value of KK Ltd: 112 + 12 = 124 million of which 40 million is debt.
Therefore equity = 124M – 40M = 84M

Gross earnings as before	50,000,000
Less interest on debt 40M x 0.12	(4,800,000)
	45,200,000
Less tax @30%	(13,500,000)
	31,640,000

Cost of equity of KK before debt = $\frac{35M}{112M}$ = 31.25%

Cost of equity capital after debt: $\frac{31640}{84000}$ x 100 = 37.66%

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MV of equity = 84M and cost of equity = 37.67%
MV of debt = 40M and cost of debt = 12%(1-0.3) = 8.4%

$$\text{WACC} = 37.67\left(\frac{84}{124}\right) + 8.4\left(\frac{40}{124}\right) = 28.23\%$$

The weighted cost of capital is 28.23% which has dropped from 31.25%.

Implications:

Gearing reduces WACC up to a point where threat of bankruptcy overweighs the tax shield advantages.

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JUNE 2009
SUGGESTED SOLUTIONS

QUESTION ONE

a) Debt crisis in less developed countries (LDCs)

The debt crisis in LDC has risen as governments have taken on levels of debt to fund their development programmes which are beyond their ability to finance. As the levels of debt increases, the ability to pay decreases thus increasing the amount of GDP absorbed in servicing the debt rather than in financing development. Other factors that have caused debt crisis in less development countries are:

Decline in oil prices and revenues to LDCs especially where the oil reserves were used to borrow loans when World Oil prices were high e.g in case of Nigeria and Venezuela.

Appreciation of currency value of lenders vis-à-vis that of LDCs

Misuse of debt by some corrupt governments of LDCs thus no ability to pay when those debts matures.

Imposed quota system on exports by LDCs thus imports exceed exports and there is always need for funds to finance the deficit.

b) If the debt crisis is temporary due to fall in commodity prices, the country could borrow short term debt to cover the temporary shortfall. Where the problem of debt crisis is long term, the following measures would be appropriate:

Restructuring and rescheduling of debt. This would allow the government more time in which to repay the loan.

Economic reforms e.g structural adjustment programmes improve balance of trade and stimulate growth.

Debt refinancing i.e borrow a lower interest loan, pay-off the high interest rate loan and continue paying lower interest charges on new loan.

Increase foreign direct investment, exports and reduce imports.

Debt cancellation i.e write-off of debt by lending governments and banks thus reducing interest charges and increasing ability to pay the remaining debts.

Debt-equity swaps i.e. convert debt to equity by giving foreign lenders a stake in local industries thus becoming shareholders. This reduces the burden of interest payment and increase the ability to pay.

c) The solutions to the debt crisis in LDC will benefit the MNC as follows:

Improved trading position e.g less debt burden leads to improved economic position, thus reduced controls on capital flows, exchange rates and imports.

Political and economic stability will result thus improved operational environment of MNC.

Increased size of local market for MNC due to increased purchasing power from economic growth.

Reduced foreign exchange exposure – They will be able to match local payments with local revenues thus reduce/simplify the foreign exchange exposure management.

QUESTION TWO

a) Direct foreign investment involves capital budgeting/long term investment decisions. The main factors to consider would thus be concerned with:

Tax implications of foreign investment

Estimation of initial capital outlay and future cash in flows Evaluation of various types of risks involved

Methods of financing the project/investment

Choice of appropriate cost of capital or discounting rate

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The risks involved in direct foreign investment by Multi-National Companies (MNCs)

Exchange risk – it has effects on imports and exports and will usually boarder of translation, transaction and economic risk.
Financial risk – due to uncertain cash flows, incomes and inflationary pressures
Political risk – the possibility that a political event will occur e.g change in governments which will unfavourably affect the business.
Business risk – occurs due to different economic conditions and competition from other local and Multi-National firms including imports.
Access to capital markets – the capital market may not be well-developed and its access may be restricted.
Government controls and regulations e.g. labour relations, sale price, product quality, non-repatriation of profits.
Taxation laws and procedures and cultural risk.

b) Methods of raising capital for small and medium-size enterprises.
From private investor groups or institutions e.g I.C.D.C, Kenya Industrial Estate (KIE) etc. From venture capitalists e.g. Acacia Fund
Commercial banks credit facilities e.g overdrafts and short term loans
From micro-finance institutions e.g. Faulu Kenya, K-Rep, Kenya Women Finance Trust.
Owner"s past savings
Loans from trade associations and cooperative societies including saccos.
Sale of securities to private individuals and groups i.e issue of equity shares, corporate bonds etc. Leasing of assets from lease firms e.g African Retail Traders (ART).

QUESTION THREE

(a) I) Note that $PVIF_{12\%, 1} = 0.893$ and $PVIF_{12\%, 2} = 0.797$
The expected NPV could thus be established as follows:

	N.P.V.	J. Probabilities	ENPV
(50M x 0.893) + (20M x 0.797) – 100M	= (39.14)	0.4 x 0.3 = 12	(4.70)
(50M x 0.893) + (40M x 0.797) – 100M	= (23.47)	0.4 x 0.5 = 20	(4.70)
(50M x 0.893) + (60M x 0.797) – 100M	= (7.53)	0.4 x 0.2 = 0.08	(0.60)
(80M x 0.893) + (50M x 0.797) – 100M	= 15.77	0.4 x 0.3 = 0.12	1.89
(80M x 0.893) + (65M x 0.797) – 100M	= 27.71	0.4 x 0.4 = 0.16	4.43
(80M x 0.893) + (70M x 0.797) – 100M	= 31.70	0.4 x 0.3 = 0.12	3.80
(90M x 0.893) + (90M x 0.797) – 100M	= 52.10	0.2 x 0.2 = 0.04	2.08
(90M x 0.893) + (85M x 0.797) – 100M	= 48.14	0.2 x 0.5 = 0.10	4.81
(90M x 0.893) + (85M x 0.797) – 100M	= 48.14	0.2 x 0.3 = 0.06	2.89
	Total Expected NPV		9.90

ii) The option to abandon will depend on the PV of abandonment value at end of year 1 and PV of cash flows at end of year 2.

PV of Sh.50M abandonment value = 50M x 0.893 = 44.65M

The expected cash flows at end of year 2 would be as follows:

(20 x 0.3) + (40 x 0.5) + (60 x 0.2) = 6 + 20 + 12	= 48 x 0.4	=	19.2
(20 x 0.3) + (65 x 0.4) + (70 x 0.3) = 15+ 26 + 12	= 62 x 0.4	=	24.8
(20 x 0.3) + (85 x 0.5) + (85 x 0.3) = 18+ 42.5 + 25.5	= 86 x 0.2	=	17.2
			61.2

PV = 61.2 x 0.797	=	48.78M
PV of abandonment value	=	44.65
PV of year 2 cash flows	=	48.78

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Decisions = don"t abandon.

iii) If abandonment was a viable option, then NPV would be as follows:

Year 1 expected cash flows = (50 x 0.4) + (85 x 0.4) + (90 x 0.2) = 20 + 34 + 18 = 72M

PV = 72M x 0.893	=	64.30
Add PV of abandonment		44.64
		108.95
Less initial capital		(100.00)
NPV		8.95

b) Advantages of sensitivity analysis:

- It indicates the critical variables for which additional information is required.
- It helps in exposing inappropriate forecasts
- The decision maker can identify variables affecting the cash flow forecasts thus leads to a better understanding of the whole project
- It is usually simple to compute.

Weaknesses

- It assumes independence of variables and ignores any interrelationship which may exist e.g between selling price and variable costs.
- It does not provide clear – cut results.
- It ignores uncertainty of cash flows forecasts.

QUESTION FOUR

a) i)Advantages of forward exchange contracts to the exporter

- There is guaranteed profit margin on sale of goods since the fixed sales revenue is known in advance.
- It is important for cash flows projections and budgeting.
- It protects an exporter against unfavourable fluctuations in exchange rates.

ii) The company shall receive cash in Zeds and sell them to the bank at forward rates to realise Ksh.

The amount of Ksh. Received would thus be as follows:

Cash	Z60,000 @ 1.692	= 35,461
1st instalment	Z45,000 @ 1.690	= 26,627
2nd instalment	Z45,000 @ 1.684	= 26,722
Total Kshs.		88,810

iii) Without hedging the company would receive the following amount of Kshs.

Cash	Z60,000 @ 1.692	35,461
1st instalment	Z45,000 @ 1.690	26,627
2nd instalment	Z45,000 @ 1.704	26,408
		88,496

The decision to hedge yields higher Ksh. By 88,810 – 88,496 = Kshs.314.

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b) Interest Rate Swaps

This is a transaction which allows a company to exploit different interest rates in different markets for borrowing and thereby reduce or alter the timing of interest payments. Interest rate swaps are based on single currency.

Swaps are used where different firms in the market has different credit rating or borrowing strengths. A poor credit rating firm will borrow at fixed interest rate and anticipate a decline in future interest rate. It will therefore prefer a floating interest rate loan to take advantage of lower interest rate.

A good credit rating firm will borrow at floating or variable interest rate and anticipate an increase in interest rate thus would prefer a fixed interest rate obligation to protect itself against an upward-side risk.

Example:

X Ltd has poor credit rating and can either borrow at 12.5% fixed interest rate p.a. or London Inter bank offered rate (LIBOR) + 0.5% floating interest rate.

Y has a good credit rating and can issue either a debenture at 11% p.a. fixed interest rate or borrow at floating interest rate of LIBOR.

	X	Y
Fixed interest rate	12.5%	11%
Floating interest rate	LOBOR + 0.5%	LIBOR

Under the Swap agreement:

X borrows at variable floating interest rate of LIBOR + 0.5%
Y borrows at 11% fixed interest rate

The 2 firms agree to exchange obligations where X will pay Y interest at 11.75% fixed interest rate (12.5% + 11%)½ while Y agrees to pay X at LIBOR.

Interest Swap 11.75%

The net cost of financing will be as follows:

X Ltd

Interest payable	=	LIBOR + 0.5%
Less: Interest received from Y Ltd Under swap agreement		LIBOR
		0.5%
Add interest paid to Y		11.75%
Net % cost		12.25%

If X had borrowed at fixed rate it could be paying @ 12.5% p.a. Therefore net % interest saving = 12.5% - 12.75% = 0.25%
If Y had borrowed at fixed interest rate it could be paying interest @ 11% p.a.

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Interest payable on fixed interest rate loan	11%
Less interest received from X Ltd	11.75%
	0.75%
Add interest paid to X	LIBOR
Net % cost	LIBOR - 0.75%

Currency Swaps

Also called back to back loans, two parties agree to swap equivalent amounts of currency for a given period. Debt is thus exchanged from one currency to another.

E.g. assume a Kenyan Company (importer) requires UK£10,000 to pay a UK firm in 3 months. Consequently, a UK firm (importer) requires Ksh.1,250,000 in 3 months time to pay a Kenyan exporter.

The two firms will swap the currencies immediately/today where the Kenya firm will receive UK£10,000 and deposit it in the UK bank. The UK firm will receive Ksh.1,250,000 today and deposit it in a Kenyan bank. The two firms will wait for settlement date to pay their respective creditors.

In the meantime, they will earn interest income without the worry of prevailing exchange rate on 3 months payment date.

Advantages of Swaps

Parties are able to simulate each others borrowing while retaining their obligations to the original lenders. Each is able to borrow at lower interest rate.

They can restructure the timing of payments such that there is matching of cash out flows and in flows. Swaps are easy to arrange and flexible since they can be of any size and are reversible.

Transaction costs are very low only relating to legal costs of arranging the swap agreement. Interest rate swaps provides means of financial speculations.

Poor credit rating firms can obtain access to foreign markets and borrow at the foreign country currency at lower interest rates.

QUESTION FIVE

a) The various types of leases are: Operating or short term leases Finance or capital leases
Leverage lease
Sale and lease back leases

b) i)To justify the acquisition, the investment decision has to be made using NPV analysis.

Depreciation p.a. $= \frac{8M - 1.6M}{4 \text{ yrs}} = 1.6M$ p.a.

Savings before depreciation and taxes = 204M – 0.4M (operating expenses) = 2.0M p.a.

Net cash flows = EBDnT (I – T) + D.T.S.

Where D.T.S = depreciation tax shield = depreciation p.a. x tax rate.

Therefore net operating cash flows
= 2.0M(1 – 0.3) + (1.6M x 0.3)
= 1.4M + 0.48 = 1.880M p.a.

Cost of capital = 12%

PV of cash flows = 1.880 x $PVAF_{12\%, 4}$
= 1.880 x 3.037 = 5.71M

PV of salvage value = 1.60M x $PVIF_{12\%, 4}$
= 1.60M x 0.636 = 1.02M

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Total PV	6.73M
Less initial capital	(8.00M)
N.P.V (-ve)	(1.27M)

The acquisition is not justified.

b) ii)Should the company lease the asset?
Evaluate the decision from lease or buy decision perspective.

If the asset is leased, then after tax annual lease rentals = 2.4M(1 – 0.3)
1.680M p.a. rate = after tax cost of debt 10%(1-0.3) = 7%.

PV of lease rentals = 1.680 x $PVAF_{7\%,4}$ = 1.680 x 3.387 = 5.69M

If the asset is acquired, then:

i) Immediate cash outlay = 8.0 M
ii) Depreciation tax shield p.a. = 1.6M x 30% = 0.48 p.a.
iii) After tax annual operating cost = 0.4M(1-0.3) = 0.28M p.a.
iv) Salvage value at end of year 4 = 1.6M
v) Discounting rate = 7%

		Sh.M
Initial capital (out flow)		(8.0)
PV of DTS = 0.48 x 3.387 (in flows)		1.63
PV of operating cost p.a. = 0.28 x 3.387		(0.95)
PV of salvage value	= 1.6 x $PVIF_{7\%,4}$ (in flow)	
	= 1.6 x 0.763	1.22
Net cost of buying		(6.10M)
Net cost of leasing		(5.69M)
Net benefit of leasing	= -5.69M - -6.10	
= -5.69M + 6.10 =	0.41M	

Therefore lease the asset.

Note:

Since the after tax cost of borrowing is the discounting, the tax benefit/shield of interest charges is already incorporated in the after tax cost of debt.

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QUESTION ONE

a) i) Financial intermediation – process whereby an entity, primarily a commercial bank, receives funds from entities with surplus resources and channels these to economic agents who desires to utilise these funds. In the process, the intermediary takes title to the assets (deposits) and creates new assets (loans). Two assets and two liabilities are therefore involved in the process.

Financial facilitation – on the other hand refers to the process where some entities, eg. Investment banks and stock brokers, help in the raising of funds by economic agents directly from the investors with excess resources. The facilitator in the process does not take title to the asset. It is more like wholesaling of goods from the manufacturer to the consumer.

The two facilitation and intermediation, are similar in that they aid in the transfer of resources from areas with surplus funds to areas with deficits.

ii) Price of a bond, using a zero coupon is expressed as:

$$\text{Price} = \frac{\text{Par on maturity value}}{(1 + r)^n}$$

1. Relationship between price and interest rates:

Bonds are priced to give a yield that is highly positively correlated with the level of interest rates. This implies that higher interest rates mean higher bond yields.

From the formula above, price is inversely related to yield consequently, price is also inversely related to interest rates. The higher the level of interest rates, the lower the price of bonds and vice-versa.

2. Relationship between price and term-to-maturity

From the formula, the longer the term (ceteris paribas), the lower the bond price and vice-versa.

iii) Term structure of interest rates – Refers to the relationship between interest rates (yield) and time to maturity for any class of similar risk securities.
Different shapes are possible as follows:

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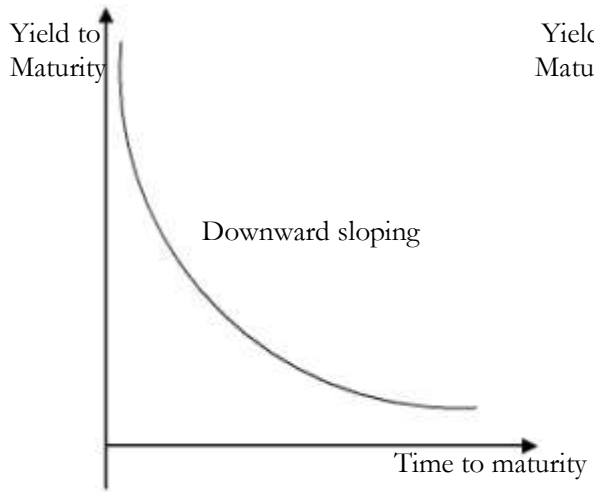

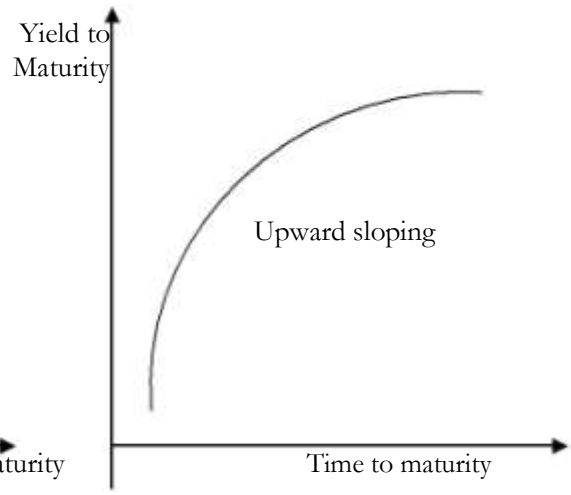

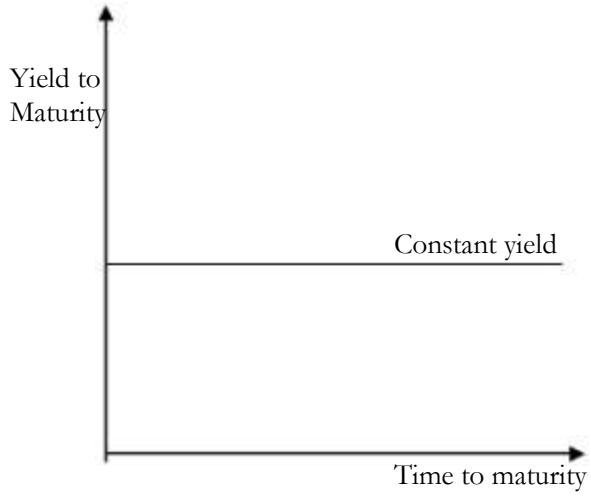

Theories that explain term structure include:

Expectation hypothesis:

States that the yield curve reflects the investor"s expectation about the future behaviour of interest rates. If investors expect a higher general level of interest rates in the future then similarly they will expect longer dated bonds/securities to have higher yields and vice-versa. Under this theory then, it is possible to have just about any term structure.

Liquidity preference theory:

States that the intuitively, longer term security rates should be higher than short term security rates because of the added risks involved with longer maturities. Consequently, this theory supports an upward sloping yield curve.

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Market Segmentation Theory

This theory premises that the markets for securities can be viewed as different „markets" depending on the maturities. The yield in each segment will be determined by the equilibrium of the forces of supply and demand. Hence, the yield curve could take any shape.

b) Three forms of informationally efficient capital markets:

i) Weak Form

The information available is restricted to details of past share prices, returns and trading volumes. Future prices cannot be predicted from historical price data alone and the chartist approach cannot consistently produce excess returns if the hypothesis is correct.

ii) Semi-strong form:

Share prices reflect all publicly available information. Reaction to public announcement will not produce excess returns as the information content of such announcements is reflected in share prices.

iii) Strong Form:

Share prices reflect all information whether publicly available or not.

QUESTION TWO

a) Dividend payout ratio = $\frac{DPS}{EPS}$

P/E= $\frac{MPS}{EPS}$

Year	1996	1997	1998	1999	2000
Payout Ratio					
A Limited	0.24	0.30	0.23	0.17	0.12
B Limited	0.17	0.17	0.17	0.176	0.17
Share price					
A Limited	17.0	13.5	17.0	23.5	33.0
B Limited	13.0	10.0	17.5	19.0	32.5
P/E Ratio					
A Limited	8.99	9.00	8.50	9.04	8.46
B Limited	6.34	6.89	5.55	7.45	7.96

b) The stock market must be responding adversely to B"s fluctuating (uncertainty) dividends per share policy in comparison to A"s stable dividend policy.

The market on the whole must be reviewing the future of A more favourable than that of B. Uncertainty of DPS for B Limited.

c) Price earnings P/E ratio analysis is a method used for share valuation. Each industry has a generally accepted bond of P/E ratios, hence to obtain price, the earnings are multiplied by the P/E ratio.

Price = P/E ratio x Earnings

In the case of dot coms, the prices are very high, earnings are negative. This would imply a negative P/E ratio. Since we are unable to attach meaning to a negative P/E ratio, the model collapses and consequently, we cannot apply simple P/E ratio analysis to these companies.

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QUESTION THREE

(a)

	X_1	X_2	X_3	X_4	X_5
A Limited	0.020	0.300	0.050	1.000	0.167
B Limited	0.020	0.200	0.000	1.200	0.63
C Limited	0.008	0.025	-0.038	1.125	0.065
D Limited	0.022	0.111	0.017	1.111	0.100

Calculate the Z-score for each company as follows:

	$1.2X_1$	$1.4X_2$	$3.3X_3$	$1X_4$	$0.6X_5$	Z-Score
A Limited	0.020	0.300	0.050	1.000	0.167	1.709
B Limited	0.020	0.200	0.000	1.200	0.63	1.541
C Limited	0.008	0.025	-0.038	1.125	0.065	1.084
D Limited	0.022	0.111	0.017	1.111	0.100	1.408

Comment on results obtained:

- Each of the 4 companies appears to be at a risk of bankruptcy because the Z-scores are below the 1.8 mark. The company most at risk of bankruptcy is C Limited because it has the lowest Z-scores

(b) Altman concentrated on only a small sample of terms in the USA.

- This formula when applied in an environment that is abstracted from the US, an environment that is different in terms of the uniqueness of the economic sectors levels in economic development in terms of corporate practices.
- Altman"s approach has been modified by subsequent researchers to refine it even further and to incorporate new ratios.
- The most popular approach seems to be the analysis of liquidity ratios the most important of which are the current ratios and quick ratio.

i) Current Ratio

Being a ratio of current assets to current liabilities, it is predicted on the wisdom that a company should have enough current asset to be able to meet future commitment to pay for its current liabilities. A ratio of about 2 is taken to be ideal although this depends on the nature of the industry.

ii) Quick Ratio

Being a ratio of current assets excluding stock to current liabilities, this ratio further measures a company"s liquidity position. Stock is excluded because it is always not possible to convert stocks to cash quickly. A ratio in excess of 1 is taken to be ideal though this again depends on the nature of the business and the industry.

Other ratios are:

iii) Total Debt – Total Assets

Indicates extent to which assets are financed by borrowing. A level of 50% is usually c onsidered appropriate.

iv) Profit Before Tax and Interest : Interest

Provides an indication of the Company"s ability to pay the interest charge out of earnings. Aratio of between 2 and 3 is considered necessary for safety.

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There is no single ratio in isolation that can be used to predict bankruptcy. Other methods of prediction other than ratio analysis should also be considered.

c) Indicators of Possible Business Failure:

- Loan/debentures due for repayment soon without any indication of how their repayments will be f unded.
- Existence of huge contingent liabilities
- Cash flow statement showing declining cash balances
- Declining sales and profits
- An increasing reliance on leasing rather than purchase of tangible assets
- Inefficient working capital management
- Declining interest cover
- Low liquidity ratios, possibly due to funding of long-term assets with short term borrowings.
- Low Z-scores calculated through the application of Altman"s prediction model or other application models.

QUESTION FOUR

a) Assumptions of CAPM

- There is a single risk-free rate of return
- An accurate statistical estimate can be made of the beta factor of a company"s shares.
- Single period investment horizon
- Perfect market (no personal taxes)
- Homogeneous expectations of investors
- Investors hold well diversified portfolios
- Inflation and its effect on dividends and capital gains can be ignored
- Returns are measured as both dividends and capital gains
- Efficient market (free flow of information)

b) Calculation of Kamili Limited Beta Coefficient:

The beta coefficient of Kamili Limited β_k is given by:

$$B_k = \frac{Cox\ (w, m)}{Var(m)}$$

Where: w = is the rate of return on Kamili shares
M = market rate of return
Cov(w,m) =Covariance between W and market return
Var(m) =Variance of the market return.

Calculation of Var(m)

Year	Index		Return as a Proportion of start of	$(m-\bar{m})$	$(m-\bar{m})^2$
year index X(m)					
1504					
1631	+127	=	+0.0844	0.0701	0.0049
1750	+ 119	=	+0.0730	0.0587	0.0034
1690	- 60	=	+0.0343	-0.0486	0.0024
1800	+110	=	+0.065	+0.0508	0.0026
1590	-120	=	-0.1167	-0.131	0.0172
0.715				0.0305	

$$\bar{M} = \frac{\sum(M-\bar{M})}{5} = \frac{0.0715}{5} = 0.0143$$

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Variance (M)= $\frac{\sum(M-\overline{M})^2}{n-1} = \frac{0.00305}{4} = 0.0076$

Calculating of Cov (W,M)

Year	Kamili Ltd Price Shs.	Return as a proportion Of start of year Price (W)	$(W-\overline{W})$	$(m-\overline{m})$	$(W-\overline{W})(m-\overline{m})^2$
1	150				
2	156	+ 6 = + 0.04	+0.034	+0.0701	0.0024
3	162	+ 6 = + 0.0385	+0.0325	+0.0587	0.0019
4	158	-4 = - 0.0247	-0.0307	-0.0486	0.0015
5	170	+12 = 0.0760	+0.07	+0.0508	0.0036
6	153	-17 = -0.1	-0.106	-0.131	0.0139
		0.0298			0.0233

$\overline{W} = \frac{\sum W}{5} = \frac{0.0298}{5} = 0.00596 \approx 0.006$ Cov(W,M) =

$$\frac{\sum(W-\overline{W})(M-\overline{M})}{n-1} = \frac{0.0233}{4} = 0.005825 \approx 0.0058$$

The beta factor for Kamili Limited is:

$\frac{\text{Cov(W,M)}}{\text{Var M}} = \frac{0.0058}{0.0076} = \frac{0.763257894}{0.7632}$

c) The expected rate of return of Kamili Limited shares can be calculated using the formula: Rw = Rf + β_k (Rm – Rf)

Where: Rf = risk free rate
Rm = expected market return
β_k = beta coefficient of Kamili Ltd.

Thus RW = 5% + 0.7632(8% - 5%)
= 5% + 0.7632 x 3%
= 5% + 2.2896%
= 7.2896%
= 7.3%

QUESTION FIVE

a) Future options give the holder the right to buy (call) or sell (put) standardised future contracts for a specified period of time at a specified strike price.
A future contract is an agreement for a specified performance at a time in the future.

Assume that 1000 tonnes of maize is available at Shs.10,000 per future contract of 1 tonne. Call option is at Sh.500 per tonne. If the future prices (when performance is to be fulfilled) are Shs.14,000, Shs.10,000 and Shs.6,000 per tonne, the pay offs are (for the holder of the future options) and "supplier" in future contracts.

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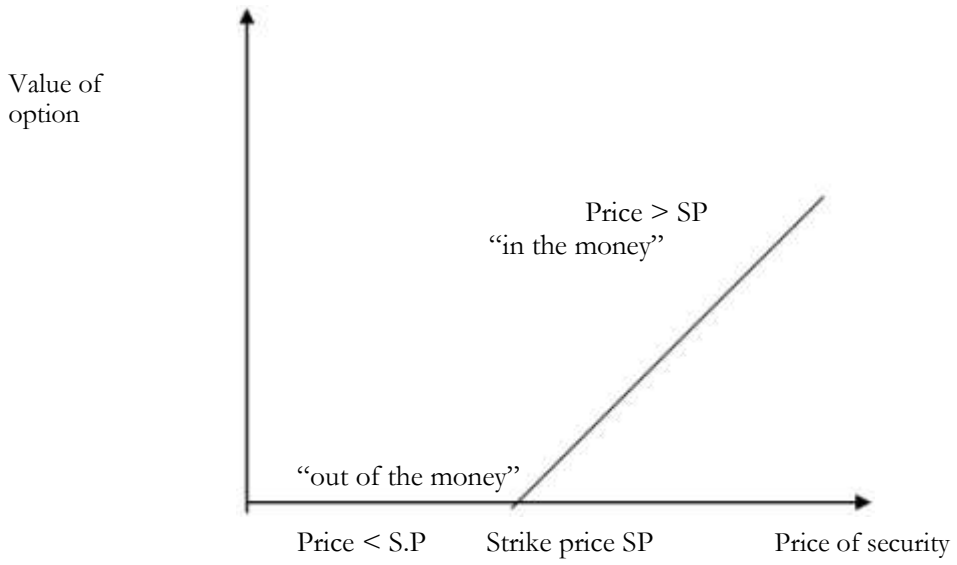
Price per tonne Shs.	Future contracts (profit) Shs.	Future option Shs.
+14,000	4,000,000	3,500,000
+10,000	-	-500,000
+ 6,000	-4,000,000	-500,000

As the table of pay offs shows, in the case of the future option, the holder limits the loss that he can incur to the option premium. In the future contracts, the potential loss is bigger with a maximum if the prices drop to zero.

b) Call option
A right to buy the underlying asset at the specified price (strike price) within a specified time.
Put option
Right to sell the underlying asset at the specified price (strike price) within a specified time.

Call option



Price = SP = "at the money"

For the holder of the call option "out of money" and "at the money" means that the option will be exercised and it will expire worthless.

The holder thus loses the option premium in this case. When the price of the underlying asset is greater than the strike price the option has value since the holder can buy the underlying asset at a price (strike price) below the assets current market price.

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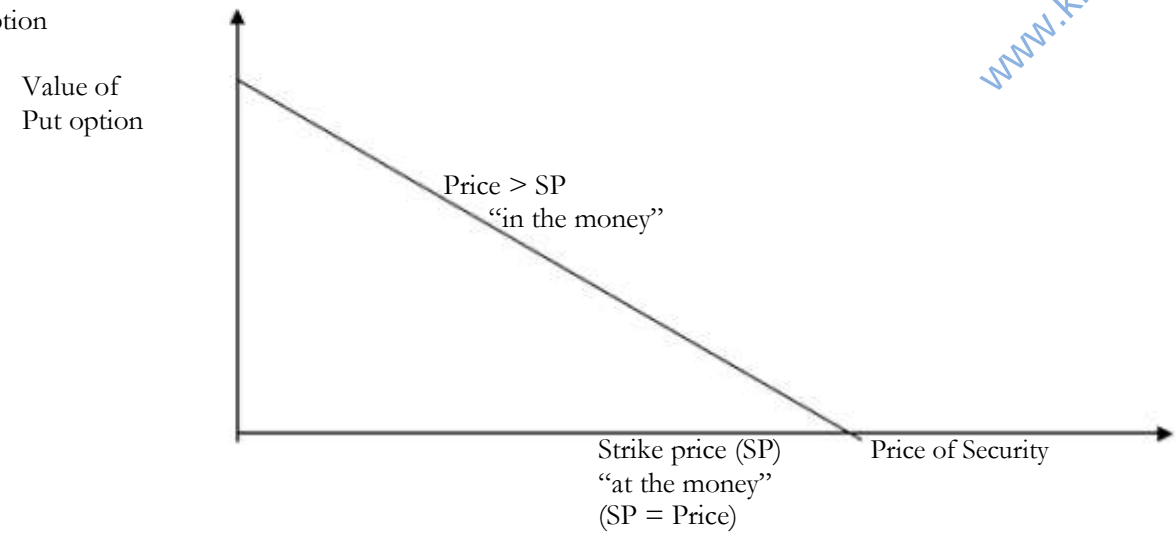
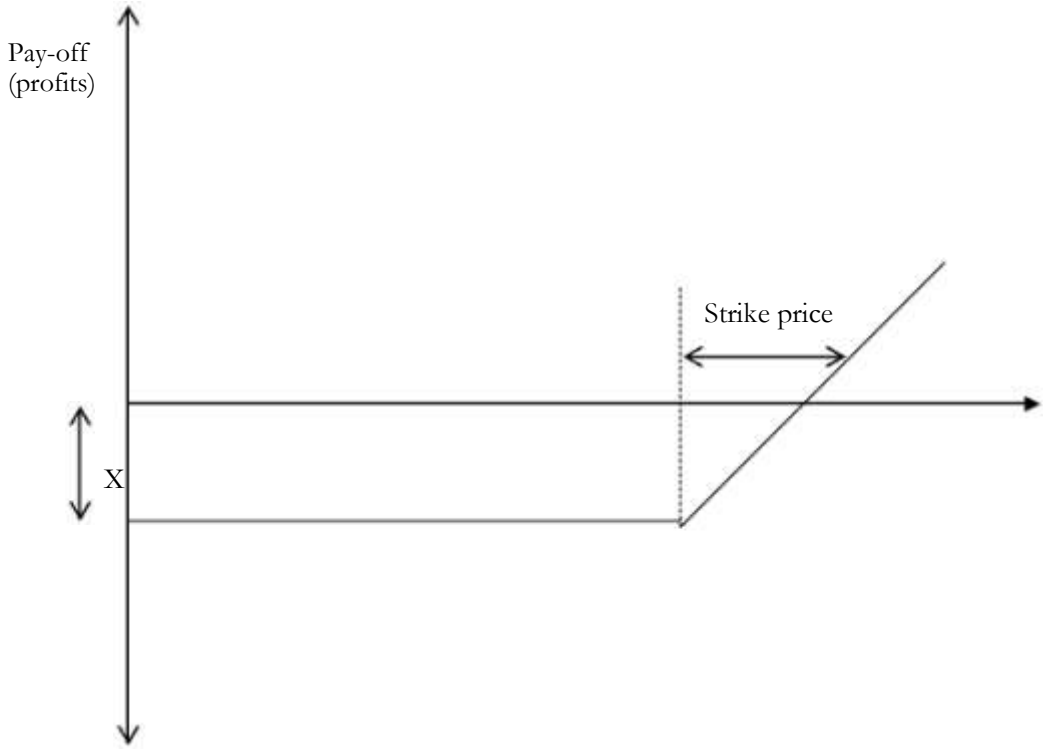
Put option



For the holder of the put option, "out of money" and "at the money" means that the option will not be exercised and it will be worthless. The owner thus loses the options premium. When the price of the underlying asset is less than the strike price, the option has value since the holder can sell the underlying asset at a price (strike price) higher than the assets current market price.

c) Protective put buying strategy

This refers to buying a put option on assets that the buyer has in his portfolio.



The strategy limits the loss that the holder can incur to the cost of establishing the put or the premium.

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SUGGESTED SOLUTIONS

QUESTION ONE

a) Four reasons why a company seeking to maximise shareholders wealth may wish to take over another company are as follows:

- It may wish to eliminate the competition in a particular market. By taking over a rival company it may be possible to obtain a larger market share for its products and this in turn, should lead to increases in profits.
- It may view another company as an opportunity to exploit under utilised resources. The target company may have a weak opportunity team in place which does not take advantage of profitable opportunities. By taking over the company and introducing a stronger management team it may be possible to improve sales and profit.
- The takeover of another company will result in the creation of a larger business entity which may enable economies of scale to be achieved.
- The target company may possess complimentary resources which when combined with the resources of the takeover company will result in profits over and above those achieved by the two businesses operating as separate entities.

Acquisition of a more efficient management team:
Others: - Diversification
- Tax saving
- Investing the surplus cash.

b) The offer of shares in ABC Ltd in exchange for shares in XYZ Ltd overcomes the problems of raising cash but will result in a dilution of control for existing shareholders in the bidding company in addition, equity shares represent a more costly form of financing that loan capital. The issue of new shares by ABC Ltd will reduce the gearing position of the company however, the overall level of gearing of the combined company will also be influenced by the gearing of ABC Ltd.

Shareholders of XYZ Ltd may find a share-for-share exchange attractive as no immediate liability for capital gains tax will arise as a result of the transaction. They will also still have a continuing interest in the business although it will now become part of a larger business entity. An offer for cash or loan capital would involve transaction costs if the investors wished to hold shares instead. When evaluating a share-for-share exchange, comparisons of dividends per share, earning per share and share values over time will be extremely important to investors.

The offer of loan capital in exchange for shares also overcomes the problem of raising cash and avoids any dilution of control for existing shareholders. However, it will increase the gearing of ABC Ltd and hence, the level of financial risk. When combined with the gearing of XYZ Ltd. it is possible that the total gearing will be unacceptable to the shareholders of ABC Limited. The obligations to make interest payments and capital repayments may become onerous in the future if profits are low.

Loan capital may be an attractive form of consideration, however, to the shareholders of XYZ Ltd. The offer of a fixed return and security for the investment may be welcome if investors are unsure of the future success of the combined business entity.

c) Defensive tactics employed by XYZ Ltd.

Divestiture – the targets firm spins-off some its business into an independent subsidiary company this reducing attractiveness of existing business for the predator.

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Green mail – incentive given by management of target firm to the bidder (predator) for not pursuing the takeover e.g offering the predator a higher price than the market price.

Golden parachutes – where generous compensation is given to managers of the target company if they get ousted due to a takeover.

Crown jewels – sale of the attractive business that makes the target attractive.

White knight – where the target firm offers itself to be acquired by a friendly company to escape from a hostile takeover.

Poison pill – the predator may become a target when it is targeting other firms. The predator (acquiring firm) may make itself unattractive to potential bidder. This is called poison pills e.g borrowing heavy debt to increase leverage thus becoming unattractive.

Change of state of incorporation – move to another country where forced takeover laws are more protective and restrictive.

Dual class recapitalisation – the equity shares are divided into two or more classes with different voting rights. The core or family owners are granted greater voting power under a one share, one vote rule.

Litigation by the target company – the management of the target could bring anti-trust suits against the bidder. This will delay the control contest.

Going private transactions – this is the opposite of going public. It involves buying shares from the stock exchange and making the company private.

QUESTION TWO

a) Driving forces/factors behind keen interest in corporate governance.

Increasing corporate fixtures e.g collapse of sugar factories, financial institutions, manufacturing concerns etc.

Increasing fraudulent and corrupt behaviour e.g money laundering bribery, abuse of corporate power etc. e.g golden berg scandal, bad debt crisis in the banking sector, fraudulent claims in insurance sector.

A growing demand by stakeholders for transparency, accountability as the world embraces wider issues of democratisation and good governance. This has increased shareholders activism.

Powerful and dominant BOD that manipulates shareholders and other stakeholders of the firm. The BOD perceive most shareholders as illiterate to understand fully issues in the business sector. Structures that demand academic and professional gratifications e.g some boards never demand basic qualifications of the board members. Shareholding and influencing are used as a benchmark to get a seat in the board.

The growth of multi-nationals and transnational firms.

The global governance revolution resulting from globalisation of firms and economic liberalisation. Separation of ownership from control.

b) **Advantages of good corporate governance**

Protection of investors rights.

Enhances corporate performance, capital formation and maximisation of shareholders wealth (promotes corporate growth).

Promotes standards of self regulation.

Greater investor"s confidence and access to capital

Less risk of costly litigation and substantial compensation payouts.

Efficient and responsible use of capital by companies

Greater loyalty from customers and employees

Creates mechanism that selects, monitor and replaces the managers in a timely manner. Enhanced corporate image

c) Guidelines/principles of corporate governance as issued by CMA

Audit committees – consisting of at least 3 independent non-executive directors who shall report to the board.

The committee has written terms of reference which deal clearly with its authority and duties

Directors remuneration – their package should be competitive and comparable to similar firms so as to retain the best directors and to ensure decisions made are not affected by inadequate

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Supply of information – relevant, accurate and timely information should always be provided.

Directors – the BOD should assume a primary role of fostering the long term business of the corporation consistent with their fiduciary responsibility to shareholders.

Board balance – the composition of the BOD should be as such that at least a 3rd of the members are non-executive directors.

Appointment to the board – a formal and transparent system of appointment should be in place. Re-election of directors – this should happen at least every 3 years and no director should be allowed to continue serving if this contribution has declined.

Remuneration committee – the BOD should appoint a remuneration committee consisting of independent non-executive directors with a mandate to recommend to the board the remuneration of the executive directors and structure of their compensation package.

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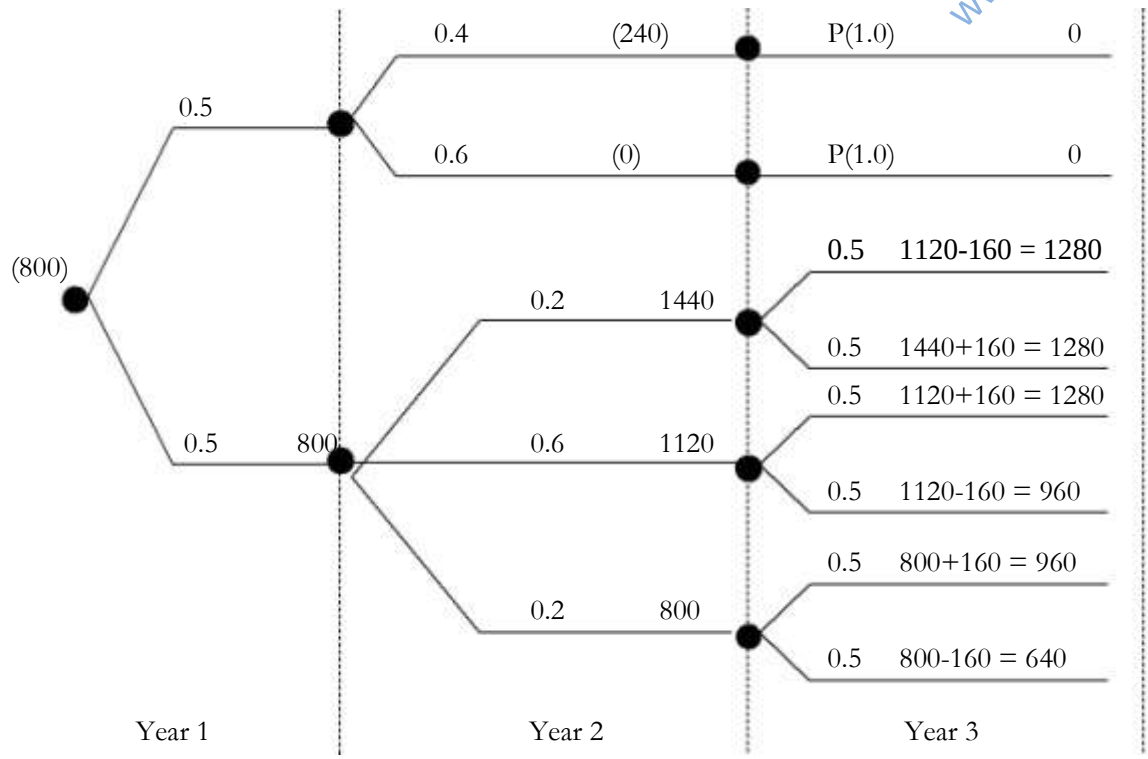
QUESTION THREE a)

Probability tree



Part (b) and (c) of the question i.e NPV and Expected NPV.

Note: $PVIF_{5\%,}$ 1 = 0.952
$PVIF_{5\%}$, 2 = 0.907
$PVIF_{5\%}$, 2 = 0.864

NPV	JOINT PROBABILITIES	EXPECTED NPV
-1017.7	0.5 x 0.4 x 1 = 0.20	-203.50
- 800.0	0.5 x 0.6 x 1 = 0.30	- 240.00
2650.1	0.5 x 0.2 x 0.5 = 0.05	132.505
2373.7	0.5 x 0.2 x 0.5 = 0.05	118.685
2083.4	0.5 x 0.6 x 0.5 = 0.15	312.510
1807.0	0.5 x 0.6 x 0.5 = 0.15	271.050
1516.8	0.5 x 0.2 x 0.5 = 0.05	75.840
1240.4	0.5 x 0.2 x 0.5 = 0.05	62.020
9853.7	Expected NPV =	529.07

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QUESTION FOUR

a) Total value of equity of the firm:

i) No expansion

Value of equity = $V_e = \frac{N_1}{K_e} = \frac{150}{.15} = 0$ Sh.1000M

ii) Expansion with debt

	Shs."M"
Net operating income	286
Interest expense 10 + 0.1(100)	20
BT	266
Taxes (40%)	106
Net income	160

$V_e = \frac{160}{0.152}$ = Sh.1053 million

iii) Expansion with equity

	Shs"M"
NOI (EBIT)	286
Interest	10
EBT	276
Taxes (40%)	110
EAT	166

$V_e = \frac{166}{0.148}$ = Shs.1122 million

b) Total debt to equity ratio of the firm:

Total debt to equity ratio (at book value) L.T debt to equity.

i) No expansion $300/700 = 0.429$; $100/700 = 0.14$

ii) Expansion with debt: $400/700 = 0.571$; $200/700 = 0.28$

iii) Expansion with equity: $300/800 = 0.375$; $100/700 = 0.12$

c) Price per ordinary share

i) No expansion:

Price per share: Ve/N = $1{,}000/10$ = Shs.100

ii) Expansion wit debt: $1053/10 = 105.3$

iii) Expansion wit equity: $1122/11$ = Sh.102

d) Total market value

i) No expansion: Value of the firm = Vd + Ve = 100 + 1000 = Shs.1100 million

ii) Expansion it debt: Value of the firm = 200 + 1053 = Sh.1253 million

iii) Expansion with equity: Value of the firm = 100 + 1122 = Sh.1222 million

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e) Weighted average cost of capital

i) No expansion: $Ko = Kb(1 - T)(B/V) + Ke\left(\frac{E}{V}\right)$

$$= 0.1(0.6)\left(\frac{100}{1100}\right) + 0.15\left(\frac{1000}{1100}\right) = 14.19\%$$

ii) Expansion with debt: $Ko = 0.1(0.6)\left(\frac{200}{1253}\right) + 0.152\left(\frac{1053}{1253}\right) = 13.73\%$

iii) Expansion with equity: $Ko = 0.10(0.6)\left(\frac{100}{1222}\right) + 0.148\left(\frac{1122}{1222}\right) = 14.08\%$

QUESTION FIVE

a) Factors affecting value of a call: Stock price:

The call value increases with the stock price. If price is higher than exercise price one would be willing to pay more for the call.

Exercise Price

The lower the exercise price the more valuable the call will be.

Time to maturity:

The longer the time to maturity, the greater the chance that the stock price will climb higher above the exercise price hence the higher the value of call.

The risk-free rate:

If the risk-free rate increases (and nothing else changes), then the call must be worth more because the discounted present value of the exercise price declines.

b) Value of a call A using black scholes (use normal distribution tables) OPM

i) $$d_I = \frac{In\left(\frac{50}{55}\right) + 0.25\left(0.10\left(\frac{0.4}{2}\right)^2\right)}{0.4\sqrt{0.25}} = -0.25$$

$d_R = 0.25 - 0.4\sqrt{0.25} = -0.45$

$N(d_I) = 0.4013$ and $N(d_Z) = 0.3264$

Therefore C = $50(0.4013) - 55 \times P^{-0.025}(0.3264)$
= 20.065 – 17.508
= Shs.2.557

ii) Call B will be more valuable because it has longer time to expiration. It has a greater chance if it will finish in the money.

1. Cost of purchase/importation 1st March
120,000 x 76.5 = Ksh.9,180,000.

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2. Number of futures to be purchases

$$\frac{120,000}{100,000} \times 76.5 = 91$$

Cost of purchase of futures:
= 91 x 1,000
= Kshs.91,000

3. Cost at 30th April
= 120,000 x 79.5
= Kshs.9,540,000

4. Close out the future contracts
= 120,000 x 77.5
= Kshs.9,300,000

Net gain or loss

Loss due to fall in value of Kshs (9,540,000 – 0,180,000)	=	360,000
Gain on closing contract (9,540,000 – 9,100,000)		(240,000)
Cost of futures contracts		91,000
Net gain of future contracts		(149,000)
Actual forex loss		211,000

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DECEMBER 2010
SUGGESTED SOLUTIONS

QUESTION ONE

a) **Limitations of the Capital Asset Pricing Model (CAPM)**

- Inability to define the exact market composition.
- CAPM is a single period model
- CAPM is a single factor model
- CAPM assumes full diversification
- Distinction between lending and borrowing is not considered by CAPM.

b) (i)

Possible Portfolios	**Return**
Project 1 and 2	0.6 x 22 + 0.4 x 26 = 23.6
Project 2 and 3	0.4 x 26 + 0.6 x 28 = 27.2
Project 2 and 4	0.4 x 26 + 0.6 x 34 = 30.8
Project 2 and money market	0.4 x 26 + 0.4 x 18 = 21.2
Project 1 and money market	0.6 x 22 + 0.4 x 18 = 20.4
Project 3 and money market	0.6 x 28 + 0.4 x 18 = 24
Project 4 and money market	0.6 x 34 + 0.4 x 18 = 27.6

Of the above the three X yield returns less than 24% and will therefore not be considered further.

Evaluation based on Portfolio Theory

Project	Standard Deviation
P_2P_3	11.7
P_3MM	10.2
P_2P_4	10.3
P_4MM	9.1

Project 2 and 3 are dominated by P_2P_4
P_3MM is dominated by P_4MM

As compared to P_3MM P_2P_4 gives the highest return per unit of risk and therefore should be selected.

ii) **Project Betas**

1. $\frac{0.68\ x7}{\sqrt{100}} = 0.476$

2. $\frac{0.65\ x9}{\sqrt{100}} = 0.585$

3. $\frac{0.75\ x15}{\sqrt{100}} = 1.125$

4. $\frac{0.88x13}{\sqrt{100}} = 1.144$

Money market = $\frac{0.4x5}{\sqrt{100}} = 0.2$

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Portfolio Beta

2 and 3 => 0.4 x 0.585 + 0.6 x 1.125 = 0.91 2
and 4 => 0.4 x 0.585 + 0.6 x 1.144 = 0.92 3
and MM => 0.6 x 1.125 + 0.4 x 0.2 = 0.75 4
and MM =. 0.6 x 1.144 + 0.4 x 0.2 = 0.77

Portfolio	Expected Return	Portfolio required rate of return	Excess Return
2 and 3	27.2%	26%	1.2%
2 and 4	30.8%	26.1%	4.7%
3 and MM	24.0%	24.2%	-0.2%
4 and MM	27.6%	24.5%	3.1%

Project 2 and 4 are the best projects as they offer the highest excess returns. (8 marks)

QUESTION TWO

a) Workings

Discount an old bond = 2% x 100M =
2M Issue costs of old bond = Sh.2M

Discount on new bond = 3% x 100M = Sh.3M
Issue costs of new bond = 5% x 100M =
Sh.5M Call premium = 10% x 100M = Sh.10 M

Overlap interest charges = 16% x 100M x 2/12 =
Sh.2.666,667 Remaining maturity period of old bond = 5 years

Initial Capital Investment

Call premium		10,000,000
Overlap interest charges		2,666,667
Discount on new bond		3,000,000
Issue costs of new bond		5,000,000
Gross investment		20,666,667
Less: tax saving/shield on:		
Call premium	10,000,000	
Overlap interest charges	2,666,667	
Unamortised discount – old bond = $\frac{5yrs}{10yrs}$ x2,000,000=	1,000,000	
Unamortised issue costs of old bond = $\frac{5yrs}{10yrs}$ x2,000,000 =	1,000,000	
Total costs	14,666,667	
Tax shield = 14,666,667 x 40%		(5,866,667)
Net capital investment		14,800,000

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b) **Annual cash benefits**

New bond

Interest charges p.a.	=	12% x 100M=	12,000,000
Less tax savings shield on annual interest charges		12,000,000	
Annual discount = $\frac{3,000,000}{5yr\ s}$		600,000	
Annual issue costs = $\frac{5,000,000}{5yr\ s}$		1,000,000	
		13,600,000	
Tax shield = 13,600,000 x 40%			(5,440,000)
Annual cash outflow			6,560,000

Old Bond

Annual interest charges = 16% x 100M		=	16,000,000
Less tax shield on:			
Annual interest charges	=	16,000,000	
Annual unamortised discount $\frac{1,000,000}{5yr\ s}$	=	200,000	
Annual unamortised issue cost $\frac{1,000,000}{5yr\ s}$	=	200,000	
		16,400,000	
Tax shield = 16,400,000 x 40%		=	(6,560,000)
Annual cash outflow			9,440,000

Annual cash benefit/savings = 9,440,000 – 6,560,000 = 2,880,000 p.a. for 5 years.

c) i)**Net Present Value**

Discount rate = 7% P.V of annual cash benefits

= 2,880,000 $PVAF_{7\%,5}$		
= 2,880,000 x 4.100	=	11,808,000
Less net capital investment	=	(14,800,000)
NPV		(2,992,000)

ii) Its not worthwhile to issue the new bond since the NPV is negative.

QUESTION THREE

a) **Net Present Value for the new drug**

Computation of the expected cash flows and net present value

Expected sales $= \sum_{1-1}^{n} S_i P_i$

= 11M x 0.3 + 14M x 0.6 + 16M x 0.1

= 13.3M

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Computation of cash flows (Sh."M"") and NPV

Year	0	1	2	3	4
Machinery & equipment opp. Cost		(85)			
Patent right	(125)				
Revenue		266	319.2	383.04	459.65
Labour costs		(106.4)	(106.4)	(106.4)	(106.4)
Material costs		(79.8)	(79.8)	(79.8)	(79.8)
Additional overheads		(15)	(15)	(15)	(15)
Salvage value of machinery					(35)
Redundancy costs				(10)	
Working capital	(2)				
Released working capital	-	-	-	-	2
Net cash flow	(212)	648	118	181.84	285.45
Discount factor @ 12%	1	0.893	0.798	0.712	0.636
Discounted cash flow	212	57.87	94.16	129.47	181.55

NPV = Sh.251.05 M

b) Based on the expected NPV the new drug should be launched as it increases shareholders wealth by Sh.251.05 M.

c) **Strength of expected NPV**

It gives the analyst a general idea about the average expectation to assess an investment proposal. Thus the decision maker can work with the average figures to determine the average customers.

The method however does not assess the risk inherent in an investment situation. The general expected outcome may hide from the analyst the worst expected and best expected outcomes. This can lead to the acceptance of a very poor proposal.

QUESTION FOUR

a) Since the current MPS is not given, compute the MPS from Earnings Per Share (EPS) and P/E ratio.

$$\text{EPS} = \frac{\text{Profits after tax}}{\text{No. of Ord. Shares}} = \frac{6.75\text{ M}}{12\text{ M shares}} = \underline{0.56}$$

MPS = EPS x P/E Ratio
= 0.56 x 22 =
= Sh.12.32

The subscriptions/issue price for a rights issue is 90% of MPS (at 10% discount)
Use price = 90% x 12.32 = 11.09

Before rights issue,	4 shares @ MPS 12.32	=	49.28
On rights issue	1 share @ Sh.11.09	=	11.09
Total	5 shares		60.37

Theoretical ex-right MPS = $\frac{60.37}{5}$ = Sh.12.07

b) Value of a right = MPS – Ex-right
= 12.32 – 12.07 = 0.25

c) i)Exercise the right and buy new shares @ Sh.11.09 each.

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-	Current number of shares	4000
-	New shares ¼ x 400	1000
		5000 shares

After rights issue 5000 shares x 12.07	=	60,350
Cost of buying new 1000 shares @ 11.09 each		(11,090)
		49,260*

ii) Sell the rights

She has 4000 rights/shares to enable her to buy 1000 new shares therefore

4000 shares @ Sh.12.07 ex-right MPS	=	48,280
and cash from sale of 4000 rights @ Sh.0.25	=	1,000
Net wealth		49,280

iii) Do nothing

She will have 4000 shares each valued at ex-right MPS of 12.07 = Sh.48,280

Note:

If she exercises the right or sells the rights, the wealth does not change. The difference in the above figures is due to approximation error.

QUESTION FIVE

a) Importance and limitations of executive share option plans (ESOP"s)

Goal congruence refers to the situations where the goals of different groups coincide. In many companies there are potential conflicts of objectives between the owners of the company, the shareholders, agents and the managers of the company. Other interest groups such as creditors, the government, employees and the local community might also have conflicting objectives to the company"s shareholders.

One way by which managers and sometimes employees in general might be motivated to take decision/engage in actions which are consistent with the goals of the shareholders is through ESOP"s. ESOP"s will not however assist in encouraging goal congruence between other interest groups and shareholders and managers.

ESOP"s allow managers to purchase a company"s shares at a fixed price during a specified period of time in the future usually a period of years. They are aimed at encouraging managers to take decisions which will result in high NPV projects which will lead to an increase in share price and shareholders wealth. The managers are believed to seek high NPV investments as they as shareholders will participate in the benefits as share prices increases.

There is however little evidence of a positive correlation between share option schemes and the creation of extra share value. There is no guarantee that ESOP"s will achieve goal congruence. Share options will only be part of the total remuneration package and may not be the major influence on managerial decisions. If share prices fall managers do not have to purchase the shares and the value of the option to buy shares becomes worthless or very small. Although ESOPs may assist in the achievement of goal congruence they are by no means a perfect solution.

b) The greatest potential beneficial effects of the host country of foreign direct investment are the creation of employment and the stimulation of additional output.

The import of capital which may be relatively scarce resources if the host country is a less developed nation is often accompanied by an infusion of new technology leading to increased productivity.

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Additional training and new skills base may be provided for local workers and more advanced management techniques introduced into the country.

Initially the balance of payments of the host country will benefit through the in flow of capital to finance the investment but over time there is likely to be an opposite movement as the multinational company seeks to remit funds to the parent country or elsewhere in the world.

Detrimental effects include:

- The loss or perceived loss of political and economic sovereignty. This is exemplified by multinationals controlling major parts of a country"s key industries which may be considered undesirable by the country"s government or strategies or defensive reasons.
- Avoidance of local taxation through transfer pricing and other measures.
- Destabilisation of the country"s monetary policy through large international currency flows by multi-nations.
- The introduction of different cultural values and lifestyles which may undermine indigenous cultures.

c) The Euro = The currency of the European Union

The Euro Bonds = Bonds sold outside jurisdiction of the country in whose currency the bond was demolimated.

The Euro Dollars= Deposit or credit dollars – held outside the regulation of the US authorities.

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SUGGESTED SOLUTIONS

QUESTION ONE

(a) The question of an acquisition strategy should cover the following:

(i) Need to define the objectives of the acquisition. The ultimate purpose must be to achieve a target rate of return but this may require to be sub-divided under other headings, for example:

- growth of annual sales
- a specified return on investment

Included in the objectives will be non-financial matters which also should be incorporated in the strategy for example, improving management personnel, quit entry into new markets, economies of large scale production, etc. Although the objectives cannot be specifically quantified there should be an attempt, … subjective to rank these in some order of priority.

(ii) The acquisitions strategy should also cover the general factors that will be looked at in all possible acquisitions, e.g.

1. **Ownership of the company**

What is the share structure, do shares carry votes, who are the main shareholders, how important is the shareholding of directors and officers.

2. **Top management**

Attempt should be made to assess the past performance of existing management and while this will be done in relation to profitability both absolute and relative, other factors should be looked at e.g. name, position, age, company service, service contracts, salaries, bonuses, and shareholding.

3. **Finance**

The main purpose of the strategy is to try to elicit information which will enable management to determine two separate but closely related pieces of information.

Firstly to ascertain the value based on the performance of the company to date which will likely have to be put on that company in order to achieve control and secondly the increased profitability which would arise for the parent company in the event of an acquisition being successful. The starting off point will of course be an analysis of the financial records of the company to be acquired, for example, to isolate operating profit from holding profit from extra-ordinary profit (or losses).

4. **Completion**

Assessment of the market situation which the company will find itself in if the acquisition is successful. For example, how will it affect the existing situation, customers, etc? what new situations will present themselves?

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(b) The value of shares for amalgamation is based on forecasted equity earnings. It is assumed that P/E is applied in forecasting earnings rather than historic earnings.

	P/E ratio	EPS	Valuation per share **Sh.**
Elgon	20 x	$\frac{Sh.33,750,000}{90,000,000}$	= 7.50
Kilima	15 x	$\frac{Sh.20,000,000}{50,000,000}$	= 6.00

The total value of shares in the companies would be as follows:

Elgon	(90,000,000 x 7.50)	=	675,000,000
Kilima	(50,000,000 x 6.00)	=	300,000,000

NB: Company Number of ordinary shares

Elgon	$\frac{Sh.90,000,000}{Sh.10}$	=	9,000,000
Kilima	$\frac{Sh.50,000,000}{Sh.10}$	=	5,000,000

Thus the implied dividend yield would be: $\frac{Dividend}{Value} x100\%$

	Elgon	**Kilima**
% Firm dividend (net) yield	$\frac{Sh.9,000,000}{Sh.675,000,000} x100\%$	$\frac{Sh.7,500,000}{Sh.300,000,000} x100\%$
	= 1.33%	= 2.5%

Earnings per share based on:

		Elgon	**Kilima**
(i)	2002 earnings	Sh.0.33	Sh.0.38
(ii)	Forecast earnings	Sh.0.375	Sh.0.40

Despite the higher earnings per share of Kilima Company Ltd. based on the forecast earnings, a higher value has been placed on each share of Elgon Company Ltd. on each share of Kilima Company Ltd. because of its lower gearing and therefore better borrowing potential and/or because of its better earnings potential or record in terms of both growth and consistency and the certainty of forecasts earnings for Elgon Company Ltd. compared to Kilima Company ltd. in light of the past performance.

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QUESTION TWO

(a)

Year		
1-5	2,000 x PVAF8%5 = 2000 x 3.993	(7,986)
6-10	1500(PVAF8%,10 – PVAF10%5 = 1500(6.710 – 3.993)	4,076
11-20	800(PVAF8%,20 – PVAF8%,10) = 800(9.818 – 6.710)	2,486
21-40	400(PVAF8%,40 – PVAF8%,20) = 400(11.925 – 9.818)	843
	NPV (negative)	(581)

The project does not satisfy normal capital budgeting criteria.

(b) (i) If residual increased by 1,000,000 then:

Base NPV	(581)
Add: PV of salvage value	
1,000,000 x PVIF8%,40 = 1,000,000 x 0.0460	46.0
Increase in NPV	(535)

NPV would increase by $\frac{46}{581} x100\%$ = 7.92% indicating that NPV is highly sensitive to changes in salvage value despite the lengthy economic life of 40 years.

(ii) A 1% increase in initial capital means 1% x 2000m = 20m p.a.

Increase this will decrease NPV by 20m x PVAF8%,5 = 20m x 3.993 = 79.86

Percentage decrease to a % change in initial capital especially because it occurs in the early years of economic life.

(iii) A 1% decrease in year 6 – 10 cash flows means 1% x 1500 = 15m decrease p.a. The NPV would decrease by 15m(6.710 – 3.993) = 40.76

% decrease = $\frac{40.76}{581} x100\%$ = 7.02%

Again a small percentage in cash flows leads to a magnified percentage change (7.02) in NPV.

(c) **Year 5**

The effect of adopting the project would be to show a sh.8 million increase in the net balance sheet value of assets, with no corresponding increase in revenue. The ratio (return on capital employed) would therefore become more unfavourable.

Year 6

The effect of including the project in the ratio in year 6 would be to increase revenue by Sh.1 million (Sh.1.5 – 0.5 million) depreciated and to increase net asset values in that year by Sh.2 million (sh.10 million in total). This would improve the ratio.

The usefulness of such a ratio is arguable as it does not take into account expectations of the future returns on capital invested in the present period.

Any capital invested on the basis suggested in the question will have an unfavourable effect on the ratio in the early years of the project as no credit is taken for expected returns until they are received.

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QUESTION THREE

(a) The following are among the major factors to be considered by Juma in deciding on the method of financing the proposed expansion project.

(i) **Liquidity during the development period**

Ideally the finance selected should minimize the drain on cash flows during the development period.

(ii) **Terms of finance**

Finance is required for at least 4 – 7 years hence short term loans which will require re-financing are not suitable. However, long term or permanent finance may produce an excess of funds after the development period if the project proves to be unsuccessful.

(iii) **Risk**

Debt with contractual interest and repayment, patterns may prove risky for Juma"s cash management activities. Equity, without any contractual dividend requirements, may prove to be the finance source with lowest risk for Juma"s management.

(iv) **Debt capacity**

There may be goods for issuing debt, thereby utilizing some unused debt capacity and taking advantage of the tax deductibility of debt interest.

(v) **Possibility of further finance required**

It is possible that further finance will be required after the development period. Hence financing decisions should be taken in a dynamic context whereby consideration is given to possible further finance requirements.

(vi) **Dilution**

An increase in equity by issuing shares to new shareholders will reduce the control and possibly, depending upon the issue price and quantity of shares issued, the wealth of existing shareholders.

(vii) **Use of funds raised**

Funds should be raised only if their use appears to be productive.

Points concerning the suitability of the three finance types include:

(b) **From Juma"s viewpoint**

(i) **Equity**

Extremely suitable from the liquidity aspects as dividends need not be paid.

If the project is not successful then permanent funds will result. However, if the project is extremely successful the greater equity base will provide even further debt capacity to facilitate further expansion. Would dilute the holdings of current shareholders.

(ii) **Loans**

Would utilize some unused debt capacity. Interest payments would be required under all circumstance but would be tax deductible. Term of the loan may be difficult to arrange in order to provide the medium term (up to 4 – 7 years) or long term finance.

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(iii) **Convertible debentures**

Have the advantage that investment payments are tax deductible but are usually lower than the interest rate on ordinary loans thereby conserving them the debt will be converted into equity and could then provide the equity base for further debt financing expansion.

If the project is not successful then conversion will not take place and the debenture can be repaid. Conversion into equity will usually result in fewer new shares being issued with consequent less dilution.

From the finance provider"s viewpoint

(i) **Equity**

Enables participation in the success of the firm but provides no security in the event of the project not providing successful.

(ii) **Loans**

Provide security and regular interest payments but will not permit participation in any success of the firm.

(iii) **Convertible debentures**

Provide the security of a loan with the possibility of favourable (but not unfavourable) equity participation. However, in order to obtain this protected position the interest received is usually lower than a normal loan and the conversion terms result in fewer shares than would be obtained by an initial investment in equity.

In the circumstances of Juma, the use of convertible debentures is recommended as they will utilize d ebt capacity and provide medium term or long term finance as required by the outcome of the project.

The debentures should be convertible into equity from about year 4 onwards at the holder"s option unless previously repaid by Juma. Juma should arrange a repayment option during the period of about years 4 – 7. The debentures could be secured on the land and buildings to be purchased.

(c) The risk of the portfolio can be measured by the weighted average beta factor for the shares in the portfolio. The weights should be the market prices of the shares.

Shares in	No.	Market Price	Total market value Sh.	Beta factor (β)	MVX
A Ltd	60,000	42.90	2,574,000	1.16	2,985,840
B Ltd	80,000	29.20	2,336,000	1.28	2,990,080
C Ltd	100,000	21.70	2,170,000	0.90	1,953,000
D Ltd	125,000	31.40	3,925,000	1.50	5,887,500
			11,005,000		13,816,420

Estimated beta factor= $\frac{13,816,320}{11,005,000}$ = 1.26

Since the beta factor is over 1, we can conclude that the risk of the portfolio is higher than the risk of the market as a whole.

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QUESTION FOUR

The decision as to whether or not to move into export markets or to invest overseas is the same as any other investment decision and therefore the usual techniques should be applied.

However, there are additional considerations which may well mean that the estimates are less to make and may be less certainly fulfilled. These additional considerations are: (students to include such points)

The economy of the foreign country and the international economy

The political stability in the overseas country which may result in the sequestration of property and disruption of activities.

Any restrictions on the remission of profits back to the home country arising from exchange control regulations.

Fluctuating exchange rates which may mean that losses on exchange occur.

Cultural differences which may mean that the Head Office management behaves in an inappropriate and thus less effective way.

(a) (i)**Currency exchange rates**

The problem of fluctuating exchange rates can be reduced by decreasing the level of exposure. Protection can be achieved by requiring the invoice to be at a fixed rate of exchange (from supplier) or by buying forward the necessary amount of foreign currency. Incase of longer term transactions (e.g investing in an overseas country) it may be desirable to reduce the level of exposure buy gearing up through foreign currency borrowings.

(ii) **Sources of finance**

As export trade often mean a longer period of credit, the company may well need to raise additional finance. The more likely sources are euro-currency borrowings, dollar-borrowings, documentary credits and loans from banks; the latte may need insurance.

(iii) **Investing in overseas countries**

Apart from the problems outlined above, investing in overseas countries involves one further problem – the need to translate the assets or investment into Head Office currency at the year end. The rates used will depend on the particular transaction under consideration but the most important principle is that the treatment should be consistent from year to year.

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(b) Purchases costs

	U Sh.	K Sh.
January (118,200 x 500)	59,100,000	2,586,433
Conversion rate 22.85		
February (118,200 x 1000)	118,200,000	
Conversion rate (22.85 – 1.5)	21.53	5,536,300
		8,122,733

Sales	Tsh.	Ksh.
(i) January (462,000 x 500)	231,000,000	
Conversion rate (17.18 – 3.00) = 14.18		16,290,550
(ii) February (462,000 x 1000)	462,000,000	
Conversion rate (17.18 – 55) = 11.68		39,554,795
		55,845,345

Commission of Sh.10 per 1000

$\frac{10}{1000}$ x(2,586,433 + 5,536,300 + 16,290,550 + 39,554,795)

= $\frac{10}{1000}$ x63,968,078

= Ksh.639,681

	Ksh.
Sales	55,845,345
Less cost of sales	8,122,733
	47,722,612
Less commission	639,681
Net profit	47,082,931

QUESTION FIVE

(a) The cases where some dilution of earnings might be acceptable to one of the parties in take over are:

- Where although earnings per share are reduced, the asset per share is increased.

  Where this happens then the increased asset backing may compensate for the loss in earnings in maintaining the market price of the shares; and the asset themselves may either serve as a basis for capital gearing (thus possibly restore the EPS in the long-run) or may be realized and the proceeds re-invested to restore the earnings position.

- Where a company with generally high but erratic earnings acquires a company yet with lower but stable earnings per share i.e the „quality" of the earning share improved, and this could in fact lead to an improvement in the P/E ratio.

(b) **Advantages:**

(i) Front point of view of issuing company

- Cheap to implement abridged prospectus, low advertising costs, simple application and allotment procedure.
- High probability of success. If the company did not have a good record it would not attempt a rights issue.

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- Good publicity – could help any future public issue.

(ii) From point of view of shareholders.

- A two-way option; either to get extra shares in a good company at a cheaper price, or to cash on their rights.

- If successful, the voting power of existing shareholders is not diluted.

Disadvantages

(i) From point of view of the issuing company

- Issue price will be lower than might have been obtained in open market.

(ii) From point of view of shareholders

- In the short run the amount of earnings per share might be diluted leading to a temporary set-back in share price.
- The company would probably not risk this with a public issue.

(c) Where expenditure must be reduced without detriment to forecast sales some possibilities in a manufacturing business are:

(i) Purchase of materials

It is possible that stockholdings could be reduced, thus saving purchases into immediate future. If stocks are indented on the basis of re-order or in fixed re-order quantities, do a quick review of those levels and quantities for the major value items having regard to the current trend of demand.

It may be advantageous to impose an arbitrary limit on the value of purchase orders to be placed each week or month. This has the advantage that the buyer will not automatically purchase everything that is requisitioned but will discuss priorities with the other managers, that the production managers will have to review the necessity for ordering supplies in advance; and that the sales manager may have to be more selective in choosing to take those orders which will yield the best margin of profit.

(ii) Operating costs

Overtime work might be discontinued except urgent customers" demands. Quality control standards might be reviewed to ensure that they were not more strict than necessary to satisfy customer requirements. A more rigorous review of the causes of waste and scrap might be instituted.

(iii) Staff costs (work, selling and administration)

An embargo might be placed on recruitment, including replacement, subject to review by the managing director. The use of temporary staff might be forbidden if necessary there could be an arbitrary cut in staff numbers, having regard however to any redundancy payments involved.

(iv) Capital expenditure

„Luxury" items like office reorganization could be cancelled or postponed. Replacement of plant and motor vehicles might be delayed. Consideration could be given to leasing, contract rental or hire purchase as alternatives to outright purchase.

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(v) Discretionary costs

The number of publications purchased might be reduced; subscriptions and donations cancelled, and the scale of advertising cut down (though this may not be possible if there are annual contracts).

(vi) Other overheads

Apart from renewed exhortations to switch off lights, make telephone calls after 1.00 p.m, use telex instead of telephone, re-use envelopes and so on saving might be achieved by slight reductions in office temperature, attempting to eliminate private use of telephone, and more careful control issue of stationery stock. In the longer term all office systems and all management information reports ought to be reviewed.

What action should be taken will depend very much on whether this is a short-term or long-term problem. If it is a long-term problem then the business is probably inefficient and a though review will be needed. If it is short-term problem then case must be taken that immediate economies do not result in longer-term losses.

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DECEMBER 2011
SUGGESTED SOLUTIONS

QUESTION ONE

(a)

	New policy	Old policy	
Sales = 220,000 x Sh.2,500	550,000	200,000 x 2,500 =	500,000
Less cost = 220,000 x 2,100	462,000	200,000 x 2,100 =	420,000
Profits	88,000		80,000

Increase in profits	88,000 – 80,000	8,000
Cost of discount 2% x 550,000 x 60%		(6,600)

New debtors- within 15 days = $\frac{15}{20} x550,000x60\% =$ 13,750

- within 45 days = $\frac{45}{360} x543,600x40\% =$ 27,500

41,250

New cost of financing debtors = 15% x 41250 6,187.5

Old policy debtors = $\frac{60}{360} x500,000$ = 83,333

Cost of financing debtors = 15% x 83,333 = 12,500

Decrease in cost (savings) = 12,500 – 6,187.5 = 6,312.5

Net profit benefit (Lost) = 3,712.5

7,712.5

It is worthwhile to offer the discount

(b) (i) Debtors turnover = $\frac{\text{Credit sales p.a.}}{\text{Average debtors}}$

∴ Debtors = $\frac{\text{Credit sales}}{\text{Debtors turnover}}$

New debtors = $\frac{750,000,000}{10}$ = 75,000,000

Current debtors = $\frac{575,000,000}{10}$ = 57,500,000

Increase in debtors = 17,500,000

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(ii)

	Sh."M"
New profits = (1-0.85)750,000,000	112.50
Current profits = (1-0.85)575,000,000	86.25
Increamental profits	26.25
Less Bad debts = 5%(750,000,000 – 575,000,000)	(8.75)
Less collection expenses	(15.00)
Incremental profits	2.50

After tax profits = 2.50(1-0.3) = 1.75M

ROI= $\frac{1.5}{17.5} x100$ = 10%

(iii) Total investment = 35M + 17.5 = 52.5M

After tax returns/profits = 2.5(1-0.3) = 1.75M

% ROI = $\frac{1.75}{52.5} x100$ = 3.33%

QUESTION TWO

(a) To reduce and possibly eliminate foreign exchange exposure/risks, the finance manager should do the following:

- Enter in forward contracts
- Enter into currency futures contracts
- Buy a call currency option when importing and a put current option when exporting.
- Use a money market hedge by borrowing and lending depending on when the firm is expecting receivables or make payments.
- Where possible, use swap agreements (currency swaps) especially where foreign currency is needed to finance foreign operations.
- Leading (upfront payments/receiving) and lagging (delaying payment or receipt to future date)
- Matching the receipts and payments
- Netting – off especially where a multi-national firm has a number of subsidiaries overseas which owe each other some money.
- Holding a currency "cocktail" i.e a portfolio of currencies where a loss on one currency is offset by a gain on another currency.

(b) The profitability of the venture may be preserved by:

- Entering into agreement to receive cash flows in terms of home currency only. If the local currency is weaker compared to the home currency, this can be done by negotiating for a 5 year loan of 20 million currency units.
- Repay the loan in 27M local currency units so that long term assets (new factory) would be matched with long term liability (loan)
- If the firm has 20M currency units, it can be invested in local or home country where local currency is expected to appreciate.

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QUESTION THREE

(a) Beta of equity of a geared firm Beg = Beu $\left(\frac{1+D(1-T)}{E}\right)$

Where: D = market value of debt
M = market value of debt
T = Tax rate = 30%
Beu = Ungeared Beta

Gearing	Geared Beta	Cost of equity using CAPM	W.A.C.C = $ke\left(\frac{E}{P/E}\right) + kd(1-T)\left(\frac{D}{D+E}\right)$
10%	$0.85\left(1+\frac{(0.1x0.7)}{0.9}\right)=0.92$	6 + (14-6)0.92 = 13.36%	(13.4x0.9) + [6.5(1-0.3)x0.1] = 12.45
20%	$0.85\left(1+\frac{(0.2x0.7)}{0.8}\right)=$ 1.00	6+(14-6)1.00 = 14.00%	(14.00x0.8) + (7x0.7x0.2) = 12.19
30%	$0.85\left(1+\frac{(0.3x0.7)}{0.7}\right)=$ 1.105	6 + (14-6)1.105 = 14.84	(14.84x0.7) + (7.8x0.7x0.3) = 12.03
40%	$0.85\left(1+\frac{(0.4x0.7)}{0.6}\right)=$ 1.25	6 + (14-6)1.25 = 16.00	(16x0.6) + (8.5x0.7x0.4) = 11.96
50%	$0.85\left(1+\frac{(0.5x0.7)}{0.5}\right)=$ 1.445	6 + (14-6)1.145 = 17.56	(17.56x0.5) + (10x0.7x0.5) = 12.28
60%	$0.85\left(1+\frac{(0.6x0.7)}{0.4}\right)=$ 1.743	6 + (14-6)1.743 = 19.94	(19.94x0.4) + (12x0.7x0.6) = 13.02
70%	$0.85\left(1+\frac{(0.7x0.7)}{0.3}\right)=$ 2.24	6 + (14-6)2.24 = 23.92	(23.92x0.3) + (15x0.7x0.7) = 14.52%

The optimal gearing is 40% debt, 60% equity at which WACC is lowest and value of the firm is maximized.

(b) (i)the model ignores the costs associated with high gearing such as:

Agency costs to monitor and control actions of the management
Bankruptcy/financial distress costs
Exhaustion of tax shield if interest charges are more than EBIT

(ii) High gearing will affect credit rating of the firm and will affect the action of institutional investors who prefer low gearing (high credit rating)

(iii) Liability to raise additional capital due to high gearing level.

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(iv) Manager"s attitude to risk – high gearing means high financial risk and since managers aregenerally risk averse, they will prefer low gearing (low risk) to safeguard their jobs.

(v) There are other theories of capital structure such as pecking order theory, MM prepositions I and II etc apart from the static trade-off theory described above.

(vi) The financing mix adopted by the firm will directly affect the firms operating income and managers need to consider this fact.

QUESTION FOUR

(a) Expected cash flows = (0.1 x 35) + (0.45 x 28) + (0.30 x 24) + (0.15 x 18) = 26M p.a.

PV of annual cash flows = 26M, x $PVAF_{14\%,6}$ = 26M x 3.889 = 101.114

Less initial capital = (100,000)

Expected NPV (positive) = 1.114

(b) (i)Sh."000"

Market 1 Expected profits = (0.4 x 10) + (0.5 x 18) + (0.1 x 25) = 15.50 = 15,500

Standard deviation = $\sqrt{(10-15.5)^2 0.4 + (18-15.5)^2 0.5 + (25-15.50)^2 0.10}$

= $\sqrt{24.25}$

= 4.924 = 4924

Market 2 Expected profits = (0.2 x 5) + (0.6 x 8) + (0.2 x 12) = 8.2 = 8200

Standard deviation = $\sqrt{(5-8.2)^2 0.2 + (8-8.2)^2 0.6 + (12-8.2)^2 0.2}$

= $\sqrt{12}$

= 3.464 = 3464

(ii) Co-efficient of variation = $\frac{\text{Standard deviation}}{\text{Mean/expected cash flows}}$

Market	Coefficient of variation	Ranking
1	$\frac{492}{15500}$ = 0.318	3
2	$\frac{227}{8200}$ = 0.272	2
3	$\frac{3464}{19000}$ = 0.182	1

The ranking is from the lowest risk to highest risk. The lower the coefficient of variation, the lower the risk and vice versa.

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(c) (i)

After tax profits	Shs.	20,000,000
Less sale of property		(5,000,000)
Distributable profits		15,000,000

Number of shares $= \frac{\text{Sh.100,000,000}}{\text{Sh. 10 par}} = 10,000,000$

EPS $= \frac{\text{Sh.15,000,000}}{10,000,000} = \text{Sh.1.50}$

MPS= P/E ratio x EPS = 8 x 1.50 = Sh.12

(ii) Book values are historical while market values are determined on the basis of demand and supply depending on existing market conditions.

(iii) Rate of return on equity (ROE)

$= \frac{\text{Profits after tax}}{\text{Equity}}$

$= \frac{15,000,000}{130,000,000}$

$= \underline{11.54\%}$

(iv) For valuation purposes, use the free cash flows.

Cash flows = E.A.T – exceptional items + accounting depreciation

= 20M – 5M + 20M = 35M

Accounting depreciation = economic depreciation which represents cost of replacing assets.

∴ free cash flows = Cash flows – Economic depreciation + savings

= 35M – 20M + 5M = 20M

For zero growth firm, value $= \frac{\text{Free cash flows p.a. in } \infty}{r}$

$= \frac{20M}{0.17}$

= 117,647,058

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QUESTION FIVE

(a) (i) A firm with a large proportion of high income individuals will pay low or no dividends.
Such shareholders prefer high capital to reduce their tax burden since capital gains in Kenya are tax exempt.

(ii) A growth company with abundance of good investment opportunities.
Such a firm would pay low and retain more profits to finance its good investment opportunities.

(iii) A company with ordinary growth and high liquidity.
Such a firm could pay high dividends and retain less. With high liquidity and much unused debt capacity, the firm can easily borrow debt capital to achieve optimal debt capital. It has access to capital markets.

(iv) A dividend paying company that experiences an unexpected drop in earnings from trend.
Such a firm would pay medium dividends but if the drop in earnings persist in future it should adopt payment of low dividends.

(v) A company with volatile earnings an high business risk.
This firm should pay low dividends and retain more profits to finance its investments. With high business risk, the firm does not have access to capital markets and it is difficult to raise secure debt capital which would nevertheless increase the financial risk of the firm.

(b) (i) Limitations of simulation:

- Simulation is the process by which a model is experimented upon and the results of various policies examined. The limitations of simulation models are:
- The probability distributions for the variables and of relationships between the variables can be very difficult.
- They are simplications of reality hence they are actually complex and require a substantial amount of managerial and technical time.
- Practical simulation involves the use of computers which may be a handicap without ready access to a computer.
- Results of simulation are difficult to interprete. It does not provide a clear accept/reject signal for projects.
- They do not produce optimal results. The managers make the decision after testing a number of alternative policies thus there is always a possibility that the optimum policy is not selected.
- It ignores the possibility that much of the risk may be removed through diversification.

(ii) Limitations of sensitivity analysis.

- Difficult to specify the precise relationship between a variable and NPV/I.R.A.
- It gives no indication of the likelihood of variation occurring.
- The assumed relationship is based on past outcomes and there is a possibility that this relationship may not hold in the future.
- It assumes independence of variables i.e considers the effect of a single change at a time which may be unrealistic.

It involves considerable amount of computations

(c) (i)Value weighted index:

$$= \frac{\text{Total market value at year end}}{\text{Total market value at year beginning}} \times 100$$

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$$= \frac{(60x45)+(20x80)+(90x85)+(50x70)}{(60x30)+(20x45)+(90x25)+(50x65)}$$

$$= \frac{15450}{8200} x100$$

$$= 188.42$$

(ii) Price weighted index

This is based on Total Ending prices and total beginning prices

$$\text{Price weighted index} = \frac{\text{Total ending price}}{\text{Total beginning prices}}$$

$$= \frac{45 + 80 + 85 + 70}{30 + 45 + 25 + 65}$$

$$= \underline{1.69}$$

(iii) Equally weighted index:

This is equal to arithmetic mean of % change in share prices. Equally weighted index:

$$= \frac{50\% + 78\% + 240\% + 8.0\%}{4}$$

$$= \underline{94\%}$$

Where % change

$$= \left(\frac{Endingprice}{Beginningprice} - 1\right) x100$$

e.g Mashambani $= \left(\frac{45}{30} - 1\right) x100 = 50\%$

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JUNE 2012
SUGGESTED SOLUTIONS

QUESTION ONE

(a) (i)The firm will make a one for four rights issue

4 existing shares @	Sh	30	=	120
1 new share @	Sh	20	=	20
5 shares valued at	Sh			140

Ex – right M.P.S = Sh $\frac{140}{5}$ = Sh 28

(ii) Value of right = cum – right M.P.S = 30 – 28 = ex – right M.P.S Sh 2.00

(b) (i) The chairman is right. If the market is efficient, there is no dilution in wealth if the shareholder either exercises the rights or sells the rights.

Wealth is diluted if the rights issue is ignored.

(ii) Wealth before rights issued = 100,000 shares x 30 = Sh 3,000,000

The investor has 100,000 rights attached to 100,000 shares and priced at Sh 2.00 per right.

After the rights issue, shares will sell at Sh 28.00

Sell the rights

Wealth in shares =	100,000 shares x sh 28	2,800,000
Cash from sale =	100,000 rights x sh 2.0	200,000
Total wealth		3,000,000

Exercise one – half of the rights and sell the other half

NOTE

New shares bought given a 1 for 4 rights issue = $\frac{100\,000}{4}$ x 50% = 12,500 shares at sh 20.

Total shares = (100,000 + 12,500) @ sh 28 =	3,150,000
Sale of 100,000 x 50% = 50,000 rights @ sh 2=	100,000
Cash spent buying 12,500 shares @ sh 20	(250,000)
Net wealth	3,000,000

Do nothing (ignore rights issue)

The investor will remain with the original 100,000 shares valued at sh. 28 each after rights issue
Net wealth = sh 28 x 100,000 = sh 2,800,000

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(iii) It is possible for the shareholder"s claim to be realistic if

The new capital raised is not invested but is misused

If the new capital is invested in a project whose rate of return is lower than the firm"s cost of capital

If the market is inefficient and ex – right M.P.S is infact not sh 28 hence loss in wealth of investors who exercise the right.

NOTE

If market is efficient and the project is highly profitable, the future share price will raise leading to increase in wealth of the investor.

(c) (i) If market is efficient as assumed by arbitrage pricing Model (APM), the risk factor is 1.0

(ii) Risk premium = (ER_A – Rf)

ERA = expected returns of Alpha under a given factor Rf = risk free rate
Using APT Required return RA =
Rf + (ER_A – Rf) B_1 + (er_2 – Rf) B_2 + -- -- + (Ern – Rf) Bn

ER_1 , ER_2 - - - -ERn = Expected returns of Alpha under factor 1, 2 - - -n

(ER_1 ,B_2 - - - Bn = Beta of factor 1, 2,- - -n or sensitivity factors

R_A = 5 + (1.2 x 2.5) + (0.6 x 1.5) + (1.8 x 1.0) + (2.2 x 0.8) + (0.5 x 1.2) = 12.76%

(d) Portfolio Beta or sensitivity factor = (0.3 x 4) + (0.7 x 2.6) = 3.02 = Bp
Rp = Rf + (Erm – Rf) Bp
Rp = 6% + (8.5 – 6) 3.02 = 13.55%s

QUESTION TWO

(a) Existing policy

The purchases at end of December 2004 are for January 2005

Therefore: Expected purchases/payments = sh 20 millions in 1 months time

Growth rate , g = 0.75%
Cost of capital , Ko = 1.0%

Using dividend yield model or approach,

$$\text{Present value} = \frac{\text{Expected puechses}}{\text{Ko - g}}$$

$$= \frac{20}{0.01 - 0.0075} = \text{Sh } 80.00\text{m}$$

New policy

Assuming it"s now 31st December and 0.75% growth rate in purchases and the firm has to make a 3 month purchase "now" the total amount of cost would be as follows

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For January 20m $(1.0075)^0$ = sh 20.00m
For February 20m$(1.0075)^1$ = sh 20.15m
For March 20m$(1.0075)^2$ = sh 20.30m
Total cost for 3 months purchases sh 60.45m

- If g = 0.75% per month, then 3 months (1+2)
  Compounded growth rate = $(1+g)^3 - (1.0075)^3 - 1 = 0.022669$
  = 2.27%

- If cost of capital is 1%p.m, then the 3 months
  Cost of capital (compounded) = $(1+ Ko)^3 - 1$ = 0.0303 = 3.03%

- Extra cost p.m = $\frac{60,000}{12}$ = 50,000

- P.V in perpetuity at 1% p.m = $\frac{50,000}{0.01}$ = 5,000,000 = sh 5m

This is the cost for every 3 months purchase

Summery

P.V of purchases under = $\frac{60.45}{0.0303 - 0.0227}$ 7,954m
New policy in perpetuity

	Sh „m"
P.V of cost purchases	7,954
Add P.V of etra cost	5
Total cost of new policy	7,959
Total cost of existing policy	8,000
Net savings = 8000 – 79859 =	sh 41m

(b) Public sector borrowing requirement (PSBR)

Government utilizes its revenue in 2 major ways

Revenue/current expenses
Capital expenditure

The government revenue is in form of taxes, fees, fines, rates, profits from parastatals etc

Deficit = Total revenue – (Current + Capital expenditure)
PSBR represents this deficit that should be borrowed to partly meet current and capital financing needs.

(c) Difficulties and Economic problems of Limiting PSB

It may lead to printing of money by the government which will increase money supply and inflation

External borrowing from donors may not be available

Without borrowing, investment by the government is reduced and this will impair economic growth

The government may not be able to implement its fiscal and monetary policies with Limited borrowing

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QUESTION THREE

(a) Advantages of growth by acquisition

Diversification of risk especially where the returns of acquired firm are uncorrelated to those acquiring firms

Operating and financial synergies resulting from economies of scale

Asset backing thus generation of higher returns due to efficient asset utilization

New business opportunities e.g accessing foreign markets, intellectual capital etc

Larger market share and competitive advantage

Tax advantage when the target has accumulated loses

(b) Determine the maintainable profit of Pwani Ltd equity

	Sh"M"
Equity earning	80
Add loss of profits	(20)
	60
Add 25% profits	15
Maintainable equity profits	75

Market value = P/E x E.P.S x number of shares
= P/E x equity profits

$= \frac{\text{Sh 240m}}{\text{80 m}} \text{ x 3 x 75} =$	225
Add proceeds from disposal of branch	50
Total market value	275
Bara Ltd	450
Existing market value 3m share x 150	130
Add sale of property	(100)
Less rationalization cost	480

Combined market value =275 + 480 = 755m

New shares issued = $\frac{2 \text{ x } 8}{10}$ = 1.6 + 3m= 4.6 shares of Bara

Post – acquisition M.P.S of Bara = $\frac{755}{4.6}$ = Sh 164.13

Post – acquisition M.P.S of Pwani
= 2/10 x 164.13 = Sh 32.83

(c) The cash offer has the following implications

It has a certain value compared to value of a share. Due to certainity , it will be lower than the value attached to share for share exchange

Shareholders of Pwani can dispose off their shares without incurring any transaction cost

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Any capital gains realized may be subjected to tax where possible

Pwani shareholders will use cash to buy Treasury bills and bonds thus reduce the risk of their portfolios

QUESTION FOUR

(a) The various sales revenue are as follows

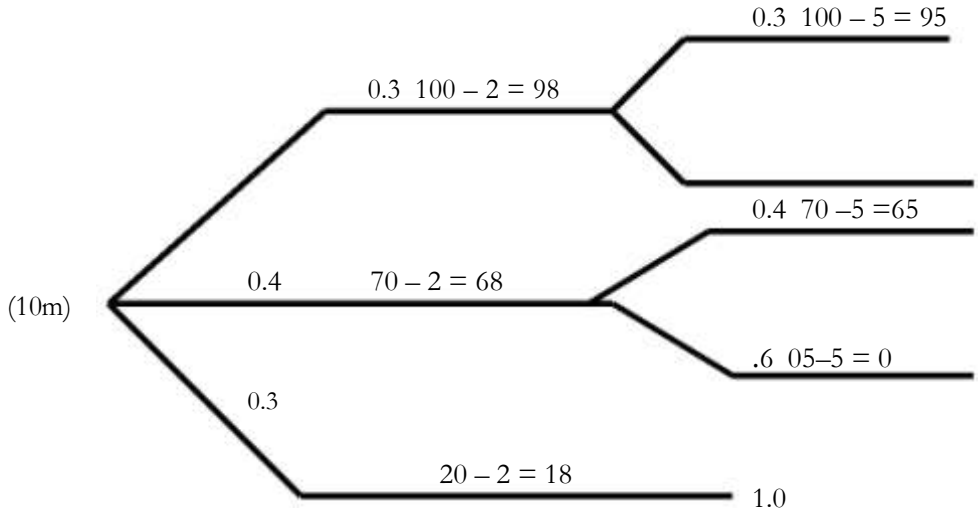
1m	units	x	100	=	100m
0.7m	units	x	100	=	70m
0.2m	units	x	100	=	20m
0.1m	units	x	100	=	10m
0.05	units	x	100	=	5m

Marketing costs

Year 1 = sh 2m
Year 2 – 11 = sh 5m p.a
$PVIF_{10\%}$, 1 – 11 = 0.909
For year 2 – 11, PVAF = ($PVAF_{10\%}$ 11 – $PVAF_{10\%}$, 1) = 5.586

Let SB = Success in both countries
SO = Success in one country
SZ = Success in none of the countries

Year 0 Year 1 Year 1 Year 2 - 11



Outcome		NPVn	J.P	ENPV
1	(98 x 0.909) + (95 x 5.586) - 10	6.09.8	0.09	54.9
2	(98 x 0.909) + (5 x 5.586) - 10	107.0	0.21	22.5
3	(68 x 0.909) + (65 x 5.586) - 10	414.9	0.16	66.4
4	(68 x 0.909) + (0 x 5.586) - 10	5.8	0.24	12.4
5	(18 x 0.909) + (0 x 5.586) – 10	6.4	0.30	1.9
	Overall NPV	1189.9		ENPV 158.1

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(b) (ii) **SNPV =** $\sqrt{\sum(NPNn - ENPV)^2 J.P}$

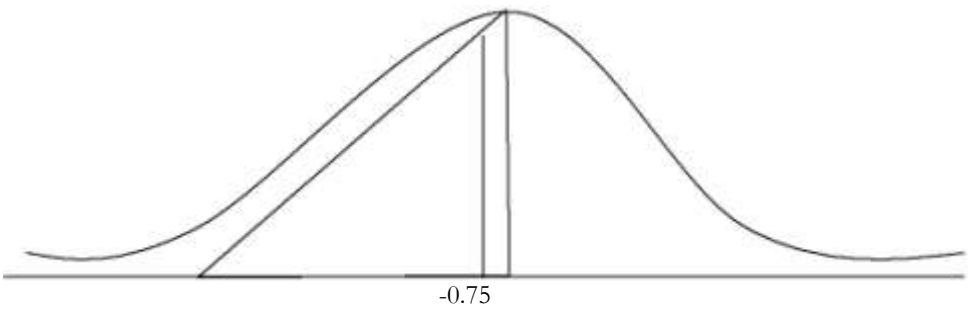
$(609.8 - 158.1)^2\ 0.09$	=	18 363.0
$(107.0 - 158.1)^2\ 0.21$	=	548.4
$(414.9 - 158.1)^2\ 0.16$	=	10 551.4
$(51.8 - 158.1)^2\ 0.24$	=	2 711.9
$(6.4 - 158.1)^2\ 0.03$	=	6903.9
		39078.6

SNPV = $\sqrt{39078.6}$ = 197.7M

(iii) Z value= $\frac{X - ENPV}{SNPV}$

= $\frac{10 - 158.1}{197.7}$ = - 0.749

Normal distribution table not given



(c) do = 55% x 4.50 = 2.475
Ke = 11%
g = ROE x retention ratio =10% x 45% = 0.045 = 4.5%

Po = $\frac{do\ (1 + g)}{ke - g}$ = $\frac{2.475(1.045)}{0.11 - 0.045}$ = sh 39.79

(ii)

Year	Expected D.P.S	$PVIF_{11\%}$, n	P.V
1 } 15%	2.475(1.15) = 2.85	0.901	2.57
2 } 15%	2.846(1.15) = 3.27	0.812	2.66
	3.27(1.045) = 52.57 / 0.11 – 0.045	0.812	42.69
3 - ∞ } 4.5%	Price of share		47.92

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QUESTION FIVE

(a) (i)**Forward rate of agreement (FRA)**

This is a contract between a bank and a company to lend or borrow a given amount of money at an agreed future interest rate.

IA case of borrowing the Bank will loose if leading rate at the time of borrowing by the borrower is higher than the agreed interest rate

FRA involve one year borrowing and the borrowing is in batches of UK ƒ500,000

(ii) **Interest rate futures**

- This is a contract to borrow or lend a fixed amount of money at a given rate and within a specified future period typically 3 months
- Futures are closed out and people can buy or ell the futures e.g. the purchase of a interest rate futures entitle the buyer to receive interest which the sale of futures involve obligations to pay interest charges
- Interest rate futures are closed out by reversing earlier e.g if one sold the contract today, he will buy it at a future date. Initial deposits called margins are required
- The contracts must be in whole

(iii) **Interest rate options**

- This are also called interest rate Guarantee (IRG) and involve the right to borrow or lend at a guaranteed interest rate at a fixed future date.
- If on exercise date the interest rate guranteed turns out to be unfavourable, the borrower/depositor will allow the option to lapse
- A cost called premium is paid to buy options

(iv) **Interest rate Swaps**

- an agreement to exchange interest rate obligations between two parties where one party has a fixed interest rate bond but anticipate decline in interest rate while another has floating interest bond but anticipate increase in interest rate. Both parties would swap the interest obligations to take advantage of anticipated charges in interest rates. It does not involve actual cashflow of the principal loan
- The loan, interest rate and period of loans must be equal

(b) (i)**Assumptions of CAPM**

- Investors are single period wealth maximisers
- There is no inflation
- Investors have homogeneous expectations regarding risk and return of a security
- There is no inflation
- Capital markets are perfect with no Taxes and there is free flow of information
- Risk free rate is known and constant
- All investors can lend and borrow unlimited amount of funds at risk free rate

(ii) Empirical studies have not completely invalidated C.A.P.M. It is still applicable in computing the cost of equity, valuation of securities and gearing adjustments among others.

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- However, the existence of frictions in the market such as taxes, transaction costs, information costs and information asymmetry tend to invalidate CAPM

(c) (i) The total returns from a share will consist of returns from capital gains plus returns on dividend (dividend yield)

The average % returns over the 3 years period for Bicdo Ltd stock market would be determined as follows

Bicdo Ltd

% Capital gains returns = $\sqrt[3]{\frac{92.5}{69.5}} - 1 = 0.10 = 10\%$

% Dividend yield = $\left(\frac{3.5}{69.5} + \frac{4.25}{73.5} + \frac{4.5}{81.5} + \frac{5.0}{92.5}\right) / 4$

= (5.03% + 5.78% + 5.52% + 5.41)/ 4 = <u>5.44%</u>

Total % return = 10% + 5.44% = <u>15.445</u>

Overall market

% Return from increase in share prices = $\sqrt[3]{\frac{3280}{2600}} - 1$ = 0.08 = <u>8%</u> = Rf

Average dividend yield = (3 + 5 + 5.5 + 5.5) /4 =4.75%

Total market % returns = <u>12.75%</u> = ERM

Average risk free rate= (7 + 9+ 8 + 8)/4 = 8% = Rf

Expected return of Bicdo, ERB = Rf + (ERM – Rf) Beta

15.44 = 8 + (12.75 – 8) Beta

7.44 = 4.75 Beta

Beta= $\frac{7.44}{4.75}$ = <u>1.57</u>

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QUESTION ONE (a).

(i) PHASES/STAGES OF PROJECT MANAGEMENT

1. Planning phase

This stage is concerned with articulation of the broad investment strategy and the generation/preliminary screening of project proposals.

The investment strategy defines the broad areas of the types of investment that the firms plans to undertake. This provide a framework that shapes, guides and circumstances the identification of the individual projects.

2. Project analysis

If the preliminary screening suggests that the project is prima facie worthwhile, a detailed analysis of the marketing technical, financial, economic and ecological aspects is undertaken, the forecast of this stage is on gathering and summarizing relevant information of various project proposals that are being considered.

Based on information developed in project analysis, the stream of costs and benefits associated with the project can be defined.

3 Project selection

This follows and often overlaps analysis – It addresses the question – is project worthwhile. A wide range of proposal criteria have been suggested to judge the worthwhileness of the project.

Criteria	Accept	Reject
Payback Period	PBP < the targeted period	PBP > the targeted period
ARR	ARR > Target rate	ARR < Target rate
NPV	NPV > 0	NPV < 0
IRR	IRR ≤ cost of capital	IRR ≥ cost of capital
Benefit Cost Ratio (BCR)	Accept if (BCR) > 1	Accept if (BCR) < 1

4 Project implementation

The implementation phase consists of several stages especially for industrial process.

5 Project Review

Once the project is commissioned the review phase is set in motion. Performance review should be done periodically to compare actual performance against the project performance. A feedback device is useful in several ways.

It throws light on how realistic the assumptions on defying the project

It provides a log of documented experience that is highly valuable in future decisions.

It suggests collective action to be taken in light of actual performance. Helps in uncovering judgemental biases

It induces a desired caution among the project personnel.

(iii) PROJECT PLANNING AND CONTROL TECHNIQUES

Project contract basically start with project planning since the project is the key to determination of adequate contract procedures and mechanisms. The contract

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techniques used throughout in the project management stage include:

1. Work breakdown
2. Project planning (Ghantt) charts
3. Network plans
4. Critical path methods
5. Program evaluation and review techniques
6. Network analysis using historical estimating behavior
7. Network simulation
8. Simulation using historical estimating behavior
9. Graphical Evaluation and Review Techniques(GERT)
10. Line of Balance (LOB)

(iii) Causes of project failure

Project failure means a failure of the project to meet its desirable objectives within its desirable costs.

Where the desired objective is to generate a profit, the failure is clearly in a large part of the financial failure.

However, where the desired objective is not a financial one, the possibility of completing the project with a reasonable cost has an important financial as well as technical aspect to it.

Main causes of project failure include:

Unclear aim or inadequate definition of requirements i.e. poor project planning/feasibility.

Inadequate project control – failure to use project control.

Inadequate/poor project management – Project team may not be qualified for their responsibilities.

Project manager Project engineer Project control engineer

Project purchasing officer/agent

Project accountant

Project construction manager

Engineering coordinator

Areas superintendent Liaison officer

Inadequate information flows due to poor management information system (MIS) Confusion of responsibilities due to political interference

Failure of the sub-contractors

Faulty equipments using poor materials

Labour problems e.g. strikes, go slows, labour turnover.

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(b) (i). According to MM, the price of a share today.
(Po) is actual to the present value.
(1). Expected DPS (d1) at year end
(2). Expected MPS (p1) at year end

$$* \; Po = \frac{d1 + P1}{1 + ke}$$

d_1 = Sh. 10 x 50% = 5
P_o = Sh 120
K_e = 10%
P_1 = ??
$P_1 = P_o(I + K_e) - d_1 = 120(1.10) - 5 =$ Sh. 127

* Amount of capital to raise from issue of new shares
= Investment needs – retained earnings
= 6m – [3 – (250,000 shares x Sh. 5)]
6 – 3 + 1.25 = 4.25 m

* To raise Sh. 4.25m new shares will be issued at Sh. 127 each.

$$\text{Number of new shares} = \frac{\text{Sh 4.25m}}{\text{Sh. 127}} = 0.0335$$

Add existing shares	0.250
Total shares	0.2835

* Value of the firm =

$$\frac{0.2835 \text{ shares x } 127 - 6m + 3m}{1.10}$$

$$= \frac{36 - 6 + 3}{1.10} = \text{Sh. 30m}$$

Alternatively

*. If no dividends are paid, EPS
d1 = 0
Po = Sh 120
Ke = 10% = 0.10
P1 = P1(I + Ke) – d1
= 120 (1,10) – 0 = 132

*. New funds to raise = Sh. 6m – 3m = 3m @ Sh.132 per share.

$$\text{New shares} \quad \frac{\text{Sh 3m}}{\text{Sh. 132}} = 0.0227$$

Add existing shares	=	0.25000
Total shares @ Sh.132	=	0.2727

$$\text{Value of firm} = \frac{(0.2727 \text{ x } 132) + 3 - 6}{1.10}$$

$$\frac{36 + 3 - 6}{1.10} = 30m$$

With and without dividends, the value of the firm is Sh. 30m hence dividends are irrelevant

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(ii). Assumption of MM
no personal and corporate taxes
perfect certainty by investors such that required rate of return is equal to cost of capital
perfect capital markets without transaction cost and there is free flow of information
investment decisions are fixed and independent of financing and dividend decisions.

QUESTION TWO

(a) (i) In the context of Financial Management, risk management involves identification of events and occurrences that could result in adverse financial consequences and negatively affect shareholders" wealth and then take convective actions to prevent or minimize the negativeconsequences of such events.

(ii) Risk management would increase shareholders wealth in the following ways. ensuring reduction in transaction costs and foreign exchange losses.
Lower interest changes by managing interest rate risk through options interest rate futures interest rate swaps etc.
Lower volatility of cashflow generated by projects hence higher stock prices
Tax shield – stable earnings ensures more tax credit compared to volatile earnings Stability of cashflows, lower borrowing cost and lower profitability of Financial distress.

(b) Since the projects are divisible and assuming a simple period capital rationing, then use profitability index to allocate the Sh. 40m. If variable costs are 40% of sales, contribution margin is 60% a hence in absence of taxes, cashflows will be determined as follows.

Cashflows = Sales – Variable costs – Fixed cost
= Contribution margin – Fixed cost.

Project	Contribution Margin	Fixed Cost	Cashflow p.a.	Economic Life	PVAF 10%	NPV
A	12.0	5	7.0	3	2.4 87	17.41 -10 = 7.41
B	18.0	10	8.0	5	3.170	30.33 – 30 = 0.33
C	10.8	6	4.8	4	6.145	15.22 – 15 = 0.22
D	10.2	8	2.2	10	7.606	13.52 – 12 = 1.52
E	4.8	2	2.8	15		21.30 – 18 = 3.3

Project D and E cannot be undertaken together

Project	Profitability index = Total P.V / Initial cost	Ranking
A	17.41 ÷10= = 1.741	1
B	30.33 ÷30 = 1.011	5
C	15.22 ÷ 15 = 1.015	4
D	13.52 ÷ 12 = 1.127	3
E	21.30 ÷ 18 = 1.183	2

Allocation of Sh 40 million

Project	Initial capital	NPV
A	10	7.41
B	18	3.30
C	12 balance 12/15 x 0.22	0.176
	40 Total NPV	10.886

Total NPV = 10.886

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QUESTION THREE

(a). (i) Case for payment of higher dividends

where dividends attract lower tax rate compared to capital gains

where non-payment of dividends would attract tax penalties from authorities e.g. refer to Section 24 of Cap 470

clientele effect i.e. where low income class of supplement their low income

signaling effect – where management pay high dividends to send signals to the market (information signaling hypothesis)

where a firm is threatened with a take-over bid and payment of high dividends will persuade shareholders not to sell their shares to the predator.

Case against payment of high dividends

where taxes on dividends are higher than on capital gains

the firm require cash to finance investment opportunities

when payment of dividends have no effects on value of the firm (MM dividend irrelevance **mean)

financial distress – paying high dividends will lead to high borrowing leading to financial distress

payment of dividends contravenes the bond covenants.

(ii) The constant growth model states that the real intrinsic value of a share (Po) is equal to the total present value of all the expected future cashflows or dividends discounted at cost of equity (Ke)

$$Po = \frac{do\ (1 + g)}{Ke - g}$$

To maximize Po,

maximize do (1 + g) i.e. expected dividend per share maximize growth rte, g, but not beyond Ke

minimize Ke but not below g.

however, payment of high dividends may increase gearing and subsequently increase Ke and reduce g.

(b) (i) Polythene division

Cashflows	Timing (years)	PVAF 14%, n	P.V	„m
11% x 8m = 0.88	1 -5 p.a	3.433	3.02	
14% x 8m = 1.12	6 - ∞ p.a	$\frac{1}{0.14}$ x 0.519*	4.16	7.18
Total	P.V			

* PVAF 14% , 5 = 1.14^{-5}

Paper division		PVAF 15%, n		
12% x 12m = 1.44	1 – 10 p.a	5.019	7.23	
15% x 12m = 1.80	11 - ∞ p.a	$\frac{1}{0.15}$ x 0.247	2.97	10.2

Container division				
17% x 12m = 2.04	1 – 7 p.a	4.039	8.24	
16% x 12m = 1.92	8 - ∞ p.a	$\frac{1}{0.16}$ x 0.354	4.25	12.49
Total P.V for the three divisions				29.87

NB. Each division is a going concern and beyond the planning horizon, the

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division is assumed to generate cashflows at a rate equal to the cost of capital.

(ii)

A currency option is an option to buy or sell a given amount of currency at a given exchange rate (strike price) at a given future date.

- the option to sell is called a put currency option used by exporters while the option to
  buy is called a call currency option used by importers
- currency option could either be over-the-counter option or traded options.

A currency swap is an arrangement between two parties to exchange debt or loan obligations denominated in different currencies. The loan obligations are nominal and the principal amounts are exchanged at an agreed interest rate. The swap is usually on agreed loan obligations and agreed term or maturity period.

Challenges facing the firm involved in multinational operations

1. **Different currency denominations**

Cash flows in the various part of a multination corporate system will be denominated in different currencies. An analysis of exchange rate and the effect of fluctuating currency value must be included in financial analysis.

2. **Economic and legal Remifications**

Each country has its own unique political and economic institutions governing business. These institutional differences among countries may cause significant problems for a corporation that is coordinating and controlling worldwide operations of its subsidiaries e.g. differences in tax loss can cause a given economic transaction to have significantly dissimilar after tax consequences depending on where the transactions occurred.

3. **Political Risk**

This gives the potential discontinuity of a multinational operations in a host country due to the host country implementation of specific rules and regulations e.g nationalization, expropriation or confiscation. A host country exercise sovereignty over the people and property in its territory. Hence a host nation can place constraints on the transfer of corporate resources and even expropriate without compensation to the firm.

This risk tend to be given and cannot be changed even with negotiation. A joint venture with the government or a company in the host country can reduce this risk.

4.

Rates of Interest

Many rates of interest operate at any one time in different countries. Differences in the cost of borrowing or lending across borders arise from the market expectation about the future exchange rates. The finance manager need to study different interest rates and exchange rates when borrowing or lending in foreign currency.

5.

Exchange Controls

Some governments impose tight controls on movement of funds out of and even into their countries. Exchange controls tend to style or reduce the trade between countries and if the company is trading in a country which impose tight exchange controls, the finance manager need to know or understand which exchange control exists and how they are applied.

6.

Political System (and the role of the government)

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7. Frequently the times under which company competes, the actions that must be taken or avoided and the terms of trades of various transactions are not freely determined in the market place especially for countries ruled by dictatorship. They are however negotiated directly between the host country and the multinational corporation. If the finance manager is trading with or in the country that is ruled by dictatorship, the rules of trading can appear to be inflexible or irrational. The finance Manager needs to adopt its style to conclude successful negotiations in such regime.

8. **Cultural and Religious Differences**
Different countries have unique cultural heritages that shape values and influence the role of business in the society. When defining the appropriate goals, attitude towards risks dealing with employees e.t.c., considerations must be given to the cultural differences among/ across countries.

9. **The Language Differences**
Communication is critical in all businesses and to penetrate another market, the company need to have knowledge of language to communicate with managers, workers and consumers.

10. **Return Considerations**
Domestically, competitive pressures may be such that only a normal rate of return can be earned. A firm may invest abroad so as to produce more efficiently due to existence of cheaper factor of production.

Taxation
Tax laws are different in different countries and therefore a firm may invest abroad to minimize tax payment to the government

QUESTION FOUR

(b) The exchange rate is in form of indirect quote which indicates the amount of foreign currency (US $) per unit of domestic currency (Ksh.)

(i) Forward contract
The firm could contract to buy $600,000 at an agreed 3 month forward exchange rate. This rate is given as $0.0154/ Ksh.

∴1 Ksh. = $0.0154
? = $600,000

$$\text{Ksh. payable} = \frac{600{,}000 \times 1}{0.0154} = \text{Ksh. } 38{,}961{,}039$$

(ii) Leading
The Kenyan importer may opt to pay the $600,000 "now" but the Ksh. is appreciative against the $ which is advantageous to the Kenyan importer. This is not a viable option but would be if the evaluated amount is paid now, the Ksh. payable would be

$$\frac{\$600{,}000}{0.013} = 46{,}153{,}846$$

assuming the firm does not have this money, it would borrow and pay interest in Kenya for 3 months so that future value would be Ksh. 46,153,846 (1 + r) where r = 3 month Kenyan interest rate.

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(iii) Money market hedge

The firm has a liability of $600,000. It needs to create an asset by depositing some money in U.S.A. This hedging would arise as follows:

(a) Deposit some dollars in USA "now" which will, together with interest, equal $600,000 in 3 months time. The amount to deposit today

$= \frac{\$600,000}{1.03} = \$582,524$ = present value

(b) The equivalent Ksh. "now" $= \frac{\$582,524}{0.013}$ = Ksh. 44,809,559

This amount would be borrowed in Kenya now and assuming this could be borrowed at 3% for 3 months, the future value of Ksh. 44,809,559 would be 44,809,559 (1.03) = Ksh. 46,153,849.

(c) Meanwhile, at end of 3 months, the deposited $ will mature to $600,000 and used to pay the USA seller.

(iv) Use of options

The examiner did not give the strike or exercise price but assuming the forward rate of $0.0154/ Ksh. then,

Ksh. payable $\frac{\$600,000}{0.0154}$ = Ksh.38,961,039

premium payable now $= \frac{\$\ 15,000}{0.013} = 1,153,846$

if this premium was borrowed at 3% in Kenya, amount in 3 months would be:

Ksh. 1,153,846 x 1.03 = 1,188,462

40,149,501

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QUESTION FIVE

(a) The difference between portfolio theory and capital asset pricing model (CAPM) is explained by the following factors

1. Portfolio theory is concerned with total risk as measured by standard deviation. CAPM is concerned with systematic or market risk only using beta factor.

2. Portfolio measures the risk of all assets held in a portfolio. CAPM measures the risk of individual securities/ assets that would be added into a portfolio.

3. In evaluative portfolio performance portfolio theory measures the performance in terms of per unit of total risk i.e. $\frac{ERp - Rf}{\delta p}$

   CAPM measures the performance in terms of returns per unit of systematic risk i.e.

   $\frac{ERp - Rf}{Bp}$

   Where ERp = % expected returns of a portfolio
   Rf = risk free interest rate
   Bp = portfolio Beta factor measuring systematic risk
   δp = total risk of portfolio returns measured by standard deviation

(b) From casual observation, the optimal debt level is simply 10% debt, 90% equity since it has the lowest cost of debt (Kd). The examiner did not give the corporate tax rate but even if a 30% rate is assumed, the answer won"t change. The Kd at various debt levels would be as follows:

% debt (yearly)	% equity	After tax cost of debt (Kd)
10	90	6.50 (1 – 0.3) = 4.55
20	80	7.10 (1 – 0.3) = 4.97
30	70	7.80 (1 – 0.3) = 5.46
40	60	8.50 (1 – 0.3) = 5.95
50	50	10.00 (1 – 0.3) = 7.00
60	40	12.00 (1 – 0.3) = 8.40
70	30	15.00 (1 – 0.3) = 10.50

The best gearing is 10% debt, 90% equity since Kd is lowest. However, this does not represent the optimal gearing (mix of debt and equity) at which point the overall cost of capital should be lowest and value of the firm maximized.

(c) (i)Expected market return ERM = (10 x 0.10) + (12 x 0.2) + (13 x 0.4) + (16 x 0.2) + (17 x 0.10) = 13.5%

Company	Amt invested Sh. „m	Beta	Weighted Beta „m
A	160	0.5	80
B	120	2.0	240
C	80	4.0	320
D	80	1.0	80
E	60	3.0	180
	500		900

(ii) Overall or portfolio beta = $\frac{900}{500}$ = 1.80

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(iii) the security market line (SML) is in form of regression equation Y = a + bx Where Y = required returns of a security/ portfolio

a = Y intercept = risk free rate (Rf) 8%
b = gradient = Beta factor
x = excess returns above risk free rate = ERM – Rf

∴ Y = 8% + (13.5 – 8) B

for any portfolio j, required returns Rj = Rf + (ERM – Rf) Bj

= 0.08 + 0.055 Bj

OR

Y = 0.08 + 0.055 B (SMC equation)

For our portfolio,

Rj = 0.08 + 0.055 x 1.80 = 0.179 = 17.9%

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JUNE 2013

QUESTION ONE

a) i) What is shareholders" value?

The concept of shareholders value (SV) was developed in 1986 by Alfred Rappaport. He made simplifying assumptions about the patterns of future free cash flows and how the various cash flow elements interact. Corporate value is the sum of:

1. Present value (PV) of free cash flow (FCF) from operation
2. Value of marketable securities

FCF is the amount of cash that remains after taking care of investment needs.

FCF =	Operating Investment in Fixed Assets	– Tax –	Increamental Investment in Working Capital	-	Increamental Profits

The company"s risk adjusted discounting rate is used to determine the present value of FCF. Marketable securities are short term investment which could be disposed off for cash without affecting the operations of the firms.

Shareholders" value = Corporate value – Value of debt capital

= (PV of FCF + Value of Marketable Securities) – Value of debt capital

To increase SV, managers should increase corporate value or reduce the value of debt capital.

Drivers of shareholders" value

The key factors that are fundamental to improving SV are called value drivers. Rappaport has identified the seven SV drivers as:

a) **Increase in sales growth rate.** Higher profitable sales growth will boost free cash flow. This couldbe achieved by acquisition of rivals and enjoying economies of scale.

b) **Increase in operating profit margin:** This can be achieved through reduction in expenses,promotion of innovation, customer care and good marketing strategies, rationalization, activity based costing etc.

c) **Reduce income tax rate:** This would improve SV since it concerns the profit for shareholders ratherthan giving it away to the government.

d) **Reduce increamental investment in fixed assets:** Substantial investments in new capital assets willdeplete FCF and hence SV. The firm should strive to make same or more sales with less assets by keeping assets which are cash generators and selling off under performing ones. The firm should consider franchising and joint ventures.

e) **Reduce increamental investment in working capital.** The firm should make more sales with lessstock and debtors. This could be done by putting in place an efficient credit policy and stock management techniques like just in time (JIT) and manufacturing requirement planning (MRP) among others. Over capitalization (excessive investment in working capital) would reduce FCF and SV.

f) **Lengthen the planning period (value growth duration).** If the firm can forecast growth over along period, it is able to forecast a longer stream of FCF and hence high corporate value and SV

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g) **Reduce required rate of return (cost of capital).** There exist an inverse relationship betweendiscounting rate and present value. There exist an inverse relationship between discounting rate and present value. Therefore, the lower cost of capital, the higher the present value of FCF and the higher the SV.

ii) Why the keen interest in Shareholder Value Analysis (SVA)?

SVA is also called Value Based Management (VBM) which is a methodology that involves managing all aspects of the business in accordance with the desire to create and maximize the wealth of shareholders. The impetus for adoption of VBM comes from several directions.

1. Emergence of aggressive shareholders– There is growing "activism" among many shareholders demanding value for money. A group of shareholders will spot firms with ineffective management and buy shares. They will draw attention to shortcomings of the management to provoke changes in BOD or for purpose of takeover the

2. Problems in assessing the impact of new management techniques:- There are numerous new, long term management techniques such as JIT, business processing re-engineering value chain management, in-sourcing, TQM, relationship management etc. The conventional investment appraisal techniques or profit measures of performance cannot adequately evaluate these techniques hence the need to ensure that value is being created through such techniques.

3. Divorce of ownership from control:- While shareholders are the owners of the firm, they are not involved in the day to day management and control of their company. To ensure that the appointed agents in the name of managers do not transfer wealth from owners (principal) to themselves through "golden parachutes", "empire building" consumption of perquisites and bonuses, shareholders need to be sure that value is created by the managers (agents).

4. Adoption of VBM by Investment Analysts:- Investment analyst use their selection skills to identify undervalued firms which become easy targets of take-over by clients of the analysts. Since managers would want to avoid takeovers and boardroom shake-ups, they manage their businesses on VBM lines.

5. Marketing effort by professional consultants:- Most accounting firms have identified the weaknesses of ROI and other metrics of value measures. They have impelled BOD to find better measures of value. They have also developed their own measures which they are marketing aggressively.

6. Managerial compensation:- Greater attention is now being paid to link management compensation to firms performance in terms of shareholders" value created.

7. Actions of Large Multinational Companies:- Many leading firms such as Coca-Cola and Siemens have now accorded value creation a central place in their corporate planning thus acting as role models for others.

Apart from SVA, other mechanisms have been developed as measures of value. These are Economic Value Added (EVA) which is profit based measure and market value added (MVA) which is market value based measure. SVA is a discounted FCF measure.

b) One for 5 rights issue.

5 existing shares @ Sh.60 = 300
1 new shares @ Sh.50 = 50
6 shares Shs.350

Ex-right M.P.S = Sh. $\frac{350}{6}$ = Sh.58.333

Value of a right = Sh.60 cum-right – Sh.58.333 = Sh.1.667

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QUESTION TWO

a) i) Cost of long term loan KL = 13%(1 – 0.3) = 9.1%
(For capital between 0 – 200m)

ii) Cost of bonds (redeemable) kd, for capital 0 – 400m

$$kd = \frac{I(I-T) + (M-Vd)^{1}/n}{(M + Vd)^{1}/2}$$

$$\frac{100\ (1-0.3) + (1000-687)^{1}/20}{(1000 + 687)^{1}/2}$$

$$= \frac{85.65}{843.5} \times 100 = 10.15\%$$

M = Maturity or par or face value
Vd = Current market value
n = Maturity period

iii) Additional debt (unlimited) cost = kd = 16(1 – 0.3) = 11.2%
iv) Cost of preference shares Kp = 16.5% (not tax deductible)
v) Cost of retained earnings, Kr

$$Kr = \frac{d_0(1 + g)}{P_0} + g$$

$$= \left(\frac{10}{18\%} + 0.055\right) \times 100 = 80$$

b) WACC

Range „M	Breaks	Kd	Kp	Kr	Weights			MCC
0 – 200	1	9.10	16.5	18	0.4	0.1	0.5	14.29
200 – 600	2	10.15	16.5	18	0.4	0.1	0.5	14.71
600 – 1000	3	11.20	16.5	18	0.4	0.1	0.5	15.13
Above 1000m	4	11.20	16.5	18	0.4	0.1	0.5	15.13

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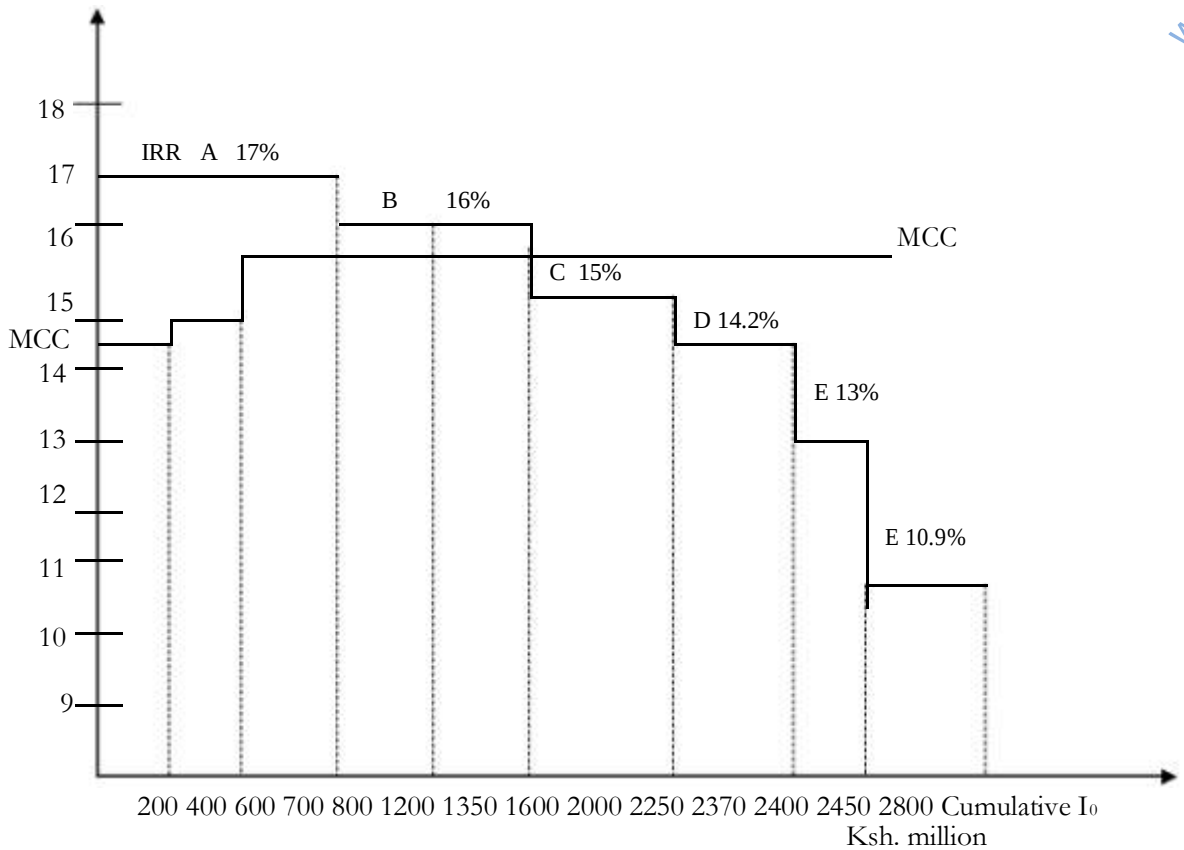

Accept projects A and B. Reject projects C, D, E and F

QUESTION THREE

a) Sensitivity analysis – a method of assessing risk in long term projects in which the effects of changes in projects viability (planned outcome) are evaluated as a result of changes in critical variables eg. Cashflows, initial capital, economic life etc affecting the project.

- A range of figures for various estimates may be considered to establish whether a positive or negative NPV results

b) i) Net cashflows = 600 – 390 p.a (annuity)

P.V @ 10% = 210 x 2.487 =	522.27
P.V of salvage value @ 10%	
80 x 0.751	60.08
Total P.V	582.35
Less I_0	500.00
NPV	82.35

ii) Initial Capital

Zero NPV to result PV = I_0

Therefore 582.35 - I_0 = 0

New I_0 = 582.35

Existing I_0 = 500.00

Increase 82.35

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% increase = $\frac{82.35}{500}$ x 100 = 16.47%

Scrap Value

522.27 + (5 x 0751) – 500 = 0

New s = salvage value = $\frac{-22.27}{0.751}$ = -29.65

Less existing salvage value = -80.00
-109.65

% decline = $\frac{109.65}{80}$ x 100 = 137%

Sales Revenue (s)

(S – 390) x 2.487 + 60.08 – 500 = 0
S – 390 = $\frac{500–60.08}{2.487}$ = 176.9
New s = 176.9 + 390 = 566.9
Less existing s 600.0
decline 33.1
% decline = $\frac{33.1}{600}$ x 100 = 5.52%

c) i) Let A = Agriculture = $\frac{400,000}{1,000,000}$ = 0.4

S = Service = $\frac{200,000}{1,000,000}$ = 0.2

M = Manufacturing = $\frac{400,000}{1,000,000}$ = 0.4

δ = Risk

ERA = (0.1 x 16) + (0.4 x 14) + (0.0 x 20) = 17.2%

$$\delta_A = \sqrt{(14-20)^2\ 0.1 + (14-17.2)^2\ 0.4 + (20-17.2)^2\ 0.5} = 2.86$$

ERS = (0.1 x 14) + (0.4 x 19) + (0.5 x 22) = 20%

$$\delta_s = \sqrt{(14-20)^2\ 0.1 + (19-20)^2\ 0.4 + (22-20)^2\ 0.5} = 2.45$$

ERm = b(0.1 x 3) + (0.4 x 5) + (0.5 x 6) = 5.3%

$$\delta_m \sqrt{(3-5.3)^2\ 0.1 + (5-5.3)^2\ 0.4 + (6-5.3)^2} = 0.90$$

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ii) Expected portfolio return ERP

(17.2 x 0.4) + (20 x 0.2) + (0.4 x 5.3) = 13%

QUESTION FOUR

a) **Dividends as residual**

- In a small world with no external finance, dividend policy should be residual. This means that the only source of finance for additional investment is earnings and consequently dividends should only be paid when the firm has financed all its positive NPV projects
- In a world with transaction costs, associated with dividends and obtaining investment finance through the sale of new shares, dividend policy will be influenced by, but not exclusively determined by the dividend as a residual approach policy.

Clientele preferences

- The clientele preferences or effect is the concept that shareholders are attracted to firms that follow dividend policy (ies) consistent with their objectives. In other words some shareholders prefer a dividend pattern which matches their desired consumption patterns.
- For example, retired people, listing off their private investments, may prefer a stable and steady income and so they would tend to be attracted to firms with a high and stable dividend yield. Likewise, pension funds need regular cash receipts to meet payments to pensioners.

b) **M & Ms Dividend irrelevancy proposition**

According to an important 1961 paper by Modigliani and Miller (MM) (1961), if a few assumptions can be made, dividend policy is irrelevant to share value. Those assumptions include:

1. There are no taxes
2. There are no transaction costs
3. All investors can borrow and lend at the same interest rate
4. All investors have free access to all relevant information

MM concluded that the determinant of value is the availability of prospects with positive NPVs and the pattern of dividends makes no difference to the acceptance of these. The share price would not move if the firm declared either a zero dividend policy or a policy of high near-term dividends.

If a company chose not to pay any dividends at all and shareholders required a regular income then this could be achieved while leaving the firm"s value intact. „Home-made dividends" can be created by shareholders selling a portion of their shares to other investors – again as there are no transaction costs and no taxation the result is identical to the receipt of cash in the form of an ordinary dividend from the firm.

c) i) Maximum offer price = P/E (predator) x EPS (Target)

P/E of huge = $\frac{222}{14.80}$ = 15 times

EPS of tiny = 29.25

Maximum offer price = 15 x 29.25 = 438.75

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ii) Premium = (offer price by Huge – MPS of Tiny

	Huge	Tiny
No. of shares	5190360 = 350700	2340000 80,000
	Sh.14.80	29.25

MPS of Target = Sh.322

Exchange Ratio = 1.5 = $\frac{\text{offer price}}{\text{MPS}}$

(Predator) Therefore 1.5 = $\frac{\text{offer price}}{222}$

Offer price = 222 x 1.5 = 333/=

Premium = (333 – 322)80000 = Shs.880,000

iii) The combined growth rate is based on earnings

$$\frac{5190360}{5190360 + 2340000}(8\%) + \frac{2340000}{5190360 + 2340000}(12\%)$$

5.51 + 3.73 = 9.24%

QUESTION FIVE

a) i) **Transaction exposure**

This relates to the gains or losses to be made when settlement takes place at some future date of a foreign currency denominated contract that has already been entered into. It arises due to credit imports and exports denominated in a foreign currency.

ii) **Translation exposure**

This arises from the need to consolidate worldwide operations according to predetermined accounting rules. Assets, liabilities, revenues and expenses must be restated in home currency terms in order to be consolidated into group accounts. The depreciation of host currency will reduce value of consolidated assets and liabilities.

iii) **Economic exposure**

This relates to the possibility that the value of the company (the present value of all future cash flows) will change due to unexpected changes in future exchange rates. The volatility of exchange rate will affect the magnitude and uncertainity of future cashflows.

b) **Hedging a transaction exposure**

i) Invoicing in home currency. A company exporting goods or services may invoice in its local currency so that payments made by the buyer are fixed and not affected by exchange rate fluctuations.

ii) **Leading and lagging**

Leading refers to an immediate payment or the granting of very short term credit. Lagging refers to the granting of long term credit.

iii) Multi lateral netting and matching

iv) Forward contracts

v) Money market hedges

vi) Currency futures

vii) Currency options

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viii) Currency swaps

C i) Since the contract is in Ksh. And the amount payable in dollars, convert the dollars into Kenya shillings at spot exchange rate on June

$0.007 = 1Ksh
$1,000,000 = ??

equivalent Ksh. = 1,000,000 x 1 = Ksh.142,857,143

1 Futures contract = Ksh1,194,000
?? = Ksh.142,857,143 Number of contracts

$= \frac{142,857,143}{1,194,000} = 119.6$

- Since contracts must be whole, 119.6 = 120 contracts
- Cotts Ltd will need to sell Ksh/ buy dollars therefore it needs to sell Ksh. Futures contracts on 1/6 and to close out on 1/9, it will need to buy the futures back.

On 1/6 sell futures	@	$0.00625
On 1/9 buy futures	@	$0.00600
		$0.00025 per contract

Total gain = $0.00025 x 120 x Ksh.1,194,000 per contract = $35,820

1Ksh = $0.006
?? = $35,820

$= \text{Total Ksh. Gain} = \frac{35,820}{0.006} = \text{Ksh.}5,970,000$

1Ksh = $0.007 spot
? = $1,000,000

$\text{Ksh} = \frac{\$1,000,000}{0.007} = 142,857,143$

1 contract = Ksh.2,000,000
- = Ksh.142,857,143

Number of future contracts $= \frac{142,857,143}{2,000,000} = 71.43 \approx$ 71 Contracts.

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QUESTION ONE

a) i) Computation of values and WACC

	Shs. Million	
	A Ltd	B Ltd
EBIT	10.0	10.0
Less interest (50m x 740	-	(3.5)
Earnings before tax	10.0	6.5
Taxes @ 30%	(3.0)	(1.95)
Available to common stock	7.0	4.55

Value of equity: E

$E = \frac{EAT}{Ke} = S = V - D$	70	35.0 (85m – 50m debt)
Value of debt	-	50.0
Total firm value:		
$V_L = V_U + DT =$	70.0	70 + 0.3(50) = 85

ii) $Ke = \frac{4.55}{35} = 13.0\%$ $W_E = \frac{35}{85} = 0.411$ $W_d = \frac{50}{85} = 0.59$

WACC B Ltd = 0.411(13%) + 0.59 x 7% (1 – 0.3) = 8.234%
WACC A Ltd = 10%

b) At the indifference point $EPS_1 = EP_2$

Let the level of EBIT be EBIT

i) $\frac{[EBIT–35.5]\ [1\ 0.3]}{20} = \frac{[EBIT–30]\ [1–0.3]}{15}$

20(0.7) [EBIT – 35.5] = 15(0.7) [EBIT – 30]

20EBIT – 7.10 = 15EBIT – 450

EBIT = $\frac{260}{\text{million } 5}$ = Sh.52

EPS = 0.77

ii) $\frac{[EBIT–30]\ (1–0.3)}{20} = \frac{[EBIT–30]\ [1–0.3]–6.5}{15}$

3[0.7 (EBIT – 30)] = 4[0.7 (EBIT – 30) – 6.5]

1.8EBIT – 54 = 2.4 EBIT – 72 – 26

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EBIT = 44 =
67.14 0.6
EPS = 1.3

QUESTION TWO

a) In one period rationing, there is constraint on the total amount of investment during the forth coming period but not thereafter. In multi-period ration capital rationing persists to future periods.

b) i) Project appraisal

Note: 1 January 2006 is taken as year 0

	Year	Cash Flow Sh.000	Discount Factor at 15%	**Present value Ksh.**
Project A:	0	(60,000)	1.0	(60,000
	1	30,000	0.87	26,100
	2	25,000	0.76	19,000
	3	25,000	0.66	16,500
			NPV	1,600
Project B	0	(30,000)	1.0	(30,000)
	1	(20,000)	0.87	(17,400)
	2	25,000	0.76	19,000
	3	45,000	0.66	29,700
				1,300
Project C	0	(40,000)	1.0	(40,000)
	1	(50,000)	0.87	(43,500)
	2	60,000	0.76	45,600
	3	70,000	0.66	46,200
				8,300
Project D	1	(80,000)	0.87	(69,600
	2	45,000	0.76	34,200
	3	55,000	0.66	36,300
				900
Project E	0	(50,000)	1.00	(50,000)
	1	10,000	0.87	8,700
	2	30,000	0.76	22,800
	3	40,000	0.66	26,400
				7,900

Conclusion – undertake all the projects if capital is unlimited as at 15% all are positive.

ii) If capital available at year 0 is limited to Ksh100 million it is necessary to undertake those projects with the highest NPV per unit of outlay at year 0.

Project	**NPV Year 0 outlay**	**NPV per Sh. Of outlay**	**Ranking**
A	1.6 / 60	0.027	4
B	1.3 / 30	0.043	3

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C	8.3 / 40	0.207	1
E	7.9 / 50	0.158	2

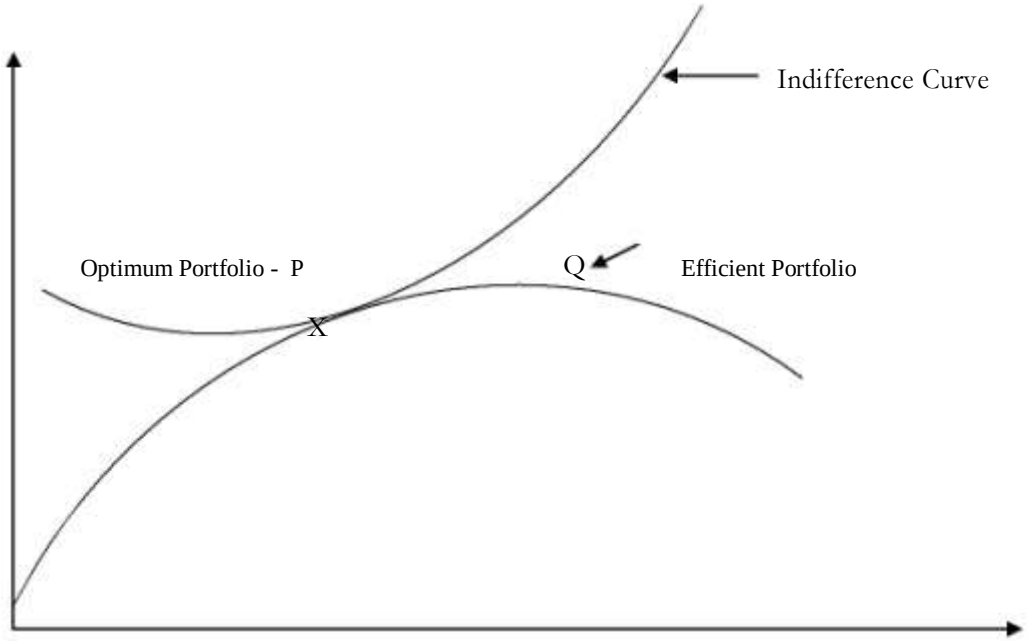
Project to be undertaken

Profit	Year 0 outlay Required - Ksh. million	%ofproject undertaken	Actual year 0 outlay Sh. million
C	40	100	40
E	50	100	50
B	30	331/3	10
			100

In addition, the whole of project D would be undertaken, since this requires no year o outlay.

QUESTION THREE

a)



While an efficient portfolio is the portfolio with the highest unit of return per given level of risk on optimum portfolio is that portfolio that is both efficient and suits the investors risk preferences.

While the portfolio Q is efficient it may not be considered optimum for an investor whose utility is defined by curve P optimum portfolio is at the point where the efficient frontier is tangent to the indifference curve.

b) i) ER_A = (0.4 x 18) + (0.5 x 14) + (0.1 x 12) = 15.4%

ER_A= (0.4 x 24) + (0.5 x 22) + (0.1 x 21) = 22.7ER_P = (0.2m x 15.4) + (0.8m x 22.7) = 21.24%

1m 1m

ii)

P	R_A – ERA	R_B – ERB	$(RA – ER_A)^2P$	$RB – ER_B)^2P$	$(RA - ER_A)(RB – ER_B)P$
0.4	18 – 15.4 = 2.6	24 – 22.7 = 1.3	2.704	0.676	2.6 x 1.3 x 0.4 = 1.352 -
0.5	14 – 15.4 = -1.4	22 – 22.7 = -0.7	0.98	0.245	1.4 x –0.7 x 0.5 = 0.490

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0.1	12 – 15.4 = -3.4	21 – 22.7 = -1.71.156	0.289	-3.4 x –1.7 x 0.1 = 0.578
		$\delta^2 A = 4.84$	$\delta^2 B = 1.21$	$COV_{A,B} = 2.42$
		$\delta A = 2.20$	$\delta B = 1.1$	

$$V_{A,B} = \frac{COV_{A,B}}{\delta A \, \delta B} = \frac{2.42}{2.20 \times 1.1} = +1.00$$

ii) If $V_{A,B}$= +1.0, the portfolio risk $\delta p = \delta AWA + \delta BWB$

$= (2.20 \times 0.2) + (1.1 \times 0.8) = 1.32$

iii) Without portfolio holding, the portfolio risk is the weighted risk of individual assets

$\delta p = (2.20 \times 0.2) + (1.1 \times 0.8) = \underline{1.32}$

QUESTIONS FOUR

a) i) Euronotes

There are a form of euro commercial paper issued by firms and the Eurobond market. The firms issue promissory notes which promise to pay the holder a fixed sum of money on a specific date or range of dates in the future. The notes are both short and medium term issued in single or multiple currencies.

Eurobonds

Eurobonds are long-term loans, usually between 3 and 20 years duration, issued and sold internationally and denominated in a single currency often not that of the country of origin of the borrower. They may be of fixed or floating rate of interest

ii) Whether to borrow in local or foreign currency

There are a variety of factors which influence the decision of whether to borrow in the domestic currency or in a foreign currency eg.

- Timing and speed – money can be raised very quickly from Euro markets
- The currency required – Companies may have needs for foreign currency funds for either trading or financing purposes.
- Security – no collateral is usually required in Euro markets
- Cost– Euro markets may be less costly in form of interest rates
- Size of loans – The Euro currency markets hold very large funds and for companies wishing to obtain very large loans this may be a viable alternative to domestic banking sources.

b) An agency relationship arises whenever one party (the principal) hire another party (the agent) to perform some task on their (principal"s) behalf and also delegate decision making authority to them (agents).

Types of relationships and potential areas of conflict

- Shareholders (p) Vs. Management (A)
- Shareholders (p) Vs Auditors
- Shareholders (A) Vs. Debt holders (P)
- Shareholders (A) Vs Government (A)

Areas of conflicts of interest shareholders (P) vs management (A)

- Managers may work less strenuously.

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- Managers may be myopic to increase short term profits
- Managers may manipulate financial statements
- Managers may engage in empire building
- Managers may award themselves more/high salaries and other benefits
- Managers may use corporate resources for personal gain.
- Shareholders (P) vs. Auditors
- Auditors may collude with management to defraud shareholders
- Auditors may fail to provide reliable audit pinions.

Shareholders (A) Vs. Creditors (P)

- Investing funds in very risky projects
- Disposing assets pledged as loan securities
- Borrowing excessively hence increasing risk of possible bankruptcy
- Manipulation of financial statements
- Organizing mergers beneficial to creditors
- Payment of high dividends thus threatening liquidity position of the firm.

Shareholders (A) vs. Government (P)

- Tax evasion
- Engaging in illegal businesses
- Luke warm response to social responsibility
- Pollution of environment
- Avoidance of businesses encouraged by the Government.

Resolution of conflicts of interest between Government and shareholders

- Develop a culture of social responsibility among firms
- Develop incentives for compliance with Government recommendations
- Policing/inspection of firms to ensure compliance
- Government may lobby for representation on the boards
- Guidelines to be issued in areas of potential conflict eg. Minimum disclosures, frequency/former of re-pricing/filling of returns etc.

QUESTIONS FIVE

a) i) Securitization is a fairly recent financial innovation that involves bringing together homogeneous, illiquid financial or physical assets and then transforming them into marketable securities. The financial assets that are transformed in this way are normally intangible claims to benefits such as loans held eg. (residential mortgage commitments) and (cpy rights).

Securitization normally involves the setting up of a special-purpose vehicle, which will buy the asset from the owners and will then undertake the issue of securities (eg. 10 years – fixed rate bond) to the market. The bonds will be serviced by the income received from the underlying assets and on the maturity of the bonds, the amounts owing may be repaid in various ways including the income generated from the underlying assets, the issue of new bonds or by the repayment of the underlying claims.

ii) Securitization may be of benefit to a business in reducing risk eg. where a bank has been engaged in heavy borrowing to a particular sector of industry ti may reduce its risk by selling some of the loans through a securitization issue. The result of such a move will also lead to releasing tied-up capital and may enable the bank to use the capital for mor profitable purposes.

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Securitization can also be helpful to a business in overcoming short-term cash flow problems as the sale of the assets results in an immediate injection of funds.

Investors may find a securitization issue attractive because the securities are marketable Marketable and the underlying assets provide good security.

b) Computation of local dividends under different dividend policies.

i) Residual policy

Expected income	Sh.4..8 million
Less amount required to finance investments 60% x 1.4	(0.84)
Residual income (Pay as dividends)	Sh.3.96 million

ii) Constant payout ratio

Payout ratio $= \frac{1.2}{3.6}$

Expected dividend $\frac{1}{3}$ x 4.8 = Sh.1.6 million

iii) Stable predictable dividend policy

$D_n = D_o\ (1 + g)^n = 1.2\ (1.1) =$ Sh.1.32m

iv) Regular dividends plus extras

Regular dividends (1.2 x 1.1) =	1.32
Extra dividends 4.8 – (1.32 + 0.48) =	2.62
Total dividends	3.96

Regular dividends at levels that can be sustained even in low profit year.

$K_r = D_i + g = \frac{nD_o\ (1 + g)}{n.po}$

$= \frac{1.5}{15\%\ 30} + 0.1 =$

ROE (r) = $\frac{g}{b}$ = $\frac{\text{growth rate}}{\text{retention ration}}$

$= \frac{10\%}{1 - \frac{1}{3}}$

= 15%

The dividends seems reasonable as ROE = KS and there is no loss to the investors due to retention or payment of dividends.

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Part III: Comprehensive Mock Examinations

QUESTIONS - MOCKS

The following are Five MOCK papers that address the major areas of the syllabus. It is recommended that candidates attempt the questions in an examination condition and then revise their answers using the suggested answers that follow.

Instructions:
Answer FIVE questions. Note that marks allocated to each part of the question are shown at the end of the question.

Questions in this part are selected from across the topics in the entire syllabus. It will be important for the candidate to try and relate the questions to the appropriate topic or sub-topic of the syllabus.

Each question carries a total of 20 marks.

Time Allowed: 3 hours

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Paper 1

CPA PART III
FINANCIAL MANAGEMENT

Time Allowed: 3 hours

Answer FIVE questions. Marks allocated to each question are shown at the end of the question.

MOCK 1

QUESTION ONE

MK Ltd is comprised of 4 major projects, details of which as follows:

Project	% of the Co. Market value	% returns p.a.	Risk (%) Std. Deviation	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% p.a. The standard deviation or the market return is 13%.

Required:

a) Evaluate whether or not the share price of MK Ltd is overvalued or undervalued. (12 marks)

b) Discuss why your results in (a) above might not correctly identify whether or not the share price of MK Ltd is undervalued or overvalued. (8 marks)

(Total: 20 marks)

QUESTION TWO

a) Define the term "Financial Engineering" and explain 3 main components of financial engineering. (8 marks)

b) Explain the factors responsible for financial innovations. (12 marks)

(Total: 20 marks)

QUESTION THREE

EMC Ltd has a paid up share capital of 1.2 million shares of Sh.20 each. The current market price per share is Sh.36. The company has no loan capital. Maintainable earnings before tax are forecast at Sh.4.8 million. The company"s effective tax rate is 40%. The company requires to raise a further Sh.15 million in order to achieve additional earnings of Sh.2.2 million per annum and proposes doing this by means of a rights issue. Suggested alternative prices for the rights issue are Sh.32 and Sh.25 per share.

Required:

a) Calculate, when the price is Sh.32 per share, the theoretical market price per share of the enlarged capital after the issue (the ex-rights price) and also the market value of a right. (8 marks)

b) Calculate as in (a) above when the price is Sh.25 per share. (4 marks)

c) Suggest, with reasons, what issue price is most likely to be adopted by the company. (4 marks)

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d) What factors might, in practice, invalidate your calculations? (6 marks)

(Total: 22 marks)

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QUESTION FOUR

Mr. Upendo, a director of Yote Limited met Mr. Mapenzi, a director of Toa Limited during a conference in Mombasa. They had some discussion about their various companies. After flying back to Nairobi, Mr. Upendo proposed to his board of directors acquisition of Toa Limited.

During his presentation to the board he stated that: "As a result of this takeover we will diversify our operations and our earnings per share will rise by 13%, bringing great benefits to our shareholders".

No bid has yet been made and Yote Limited currently owns only 2% of Toa Limited.
A bid would be based on an exchange of shares between the two companies which would be one Yote share for every six Toa shares. Financial data for the two companies include the following:

	Yote Limited Sh.(million)	**Toa Limited Sh.(million)**
Turnover	56.0	42.0
Profit before tax	12.0	10.0
Profit available to ordinary shareholders	7.8	6.5
Dividend	3.2	3.4
Retained earnings	4.6	3.1
Issued ordinary shares	20.0	15.0
Market price per share	Sh.3.2	Sh.0.45
Par value per share	Sh.0.5	Sh.0.10

Required:

a) Explain whether you agree with Mr. Upendo when he says that the takeover would bring „greatbenefits to our shareholders". Support your explanation with relevant calculations. State clearly any assumptions made. (12 marks)

b) On the basis of information provided, calculate the likely post acquisition price of a share of Yote Limited if the bid is successful. (4 marks)

c) What alternative forms of payment are available in a bid? (4 marks)

(Total: 20 marks)

QUESTION FIVE

Your firm is considering the acquisition of a new fork lift truck. It is uncertain about whether to purchase the truck outright or to finance it through a leasing arrangement with Kasneb Bank Ltd. The purchase price is Sh.5,200,000 and it will have a salvage value of Sh.400,000 at the end of its 8-year useful life. The annual lease cost would be Sh.996,000 for 8 years.

The company uses the straight-line method for analysis investment decisions.
The company can borrow funds (to purchase the forklift) at 22% and it has an effective tax rate of 35%. Its after tax cost of capital is 12%.

Required:

a) Analyse the decision situation and advise the firm about the appropriate acquisition method. (15 marks)

b) If the company could get a 20% investment allowance on this investment, how would this affect your answer in (a) above? (5 marks)

(Total: 20 marks)

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MOCK 2

QUESTION ONE

a) Explain the main reasons why multi-national companies (MNC) seek foreign investment. (6 marks)

b) Explain the types of political risks that face multi-national firms in foreign countries. (6 marks)

c) How can a MNC protect itself against political risk? (8 marks)

QUESTION TWO

Dove Construction Company Ltd made a Sh.100 million bondage 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 here below are the details about the two bond issues:

Old Bonds: The outstanding bonds have a nominal value of Sh.1,000 and 24% coupon interest rate. They were issued 5 years ago with a 15-year maturity. They were initially sold a their nominal value of Sh.1,000 and the firm incurred Sh.390,000 in floatation costs. They are callable at Sh.1,120.

New Bonds: The new bonds would have a Sh.1,000 nominal value and a 20% coupon interest rate. They would have a 10-year maturity and could be sold at their par value. The issuance cost of the new bonds would be Sh.525,000.

Assume the firm does not expect to have any overlapping interest and is in the 35% tax bracket.

Required:

a) Calculate the after-tax cash inflows expected from the unamortized portion of the old bond"s issuance cost. (2 marks)

b) Calculate the annual after-tax cash inflows from the issuance of the new bonds assuming the 10-year amortization. (2 marks)

c) Calculate the after-tax cash outflow from the call premium required to retire the old bonds. (2 marks)

d) Determine the incremental initial cash outlay required to issue the new bonds. (10 marks)

e) Calculate the annual cash-flow savings, if any, expected from the bond refunding. (8 marks)

f) If the firm has a 14% after-tax cost of debt, would you recommend the proposed refunding and reissue? Explain. (4 marks)

(Total: 28 marks)

QUESTION THREE

Summarised below are financial data in respect of Kevinko Ltd:

Profit and loss Accounts for the years ended

	1996 Sh."000"	1994 Sh."000"	1995 Sh."000"
Turnover	76,270	89,410	102,300
Taxable income	10,140	12,260	14,190
Taxation	3,549	4,291	4,966
Net profit	6,591	7,969	9,224
Dividends	2,335	2,557	2,800
	4,256	5,412	6,424

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Balance Sheet as at 31 March	
Fixed Assets	54,200
Current Assets	39,500
Current Liabilities	(26,200)
	67,500
	====
Ordinary shares (Sh.5 par value)	20,000
Reserves	32,500
10% Debentures (due 2000) par Sh.100	15,000
	67,500
	====

As a result of recent capital expansion, market analysts expect pre-tax earnings to increase at the rate of 25% for the next two years before reverting to the company"s existing growth rate.

The company"s overall beta is 0.763 while the beta for debt is 0.20. The risk free rate is 12% and the market return is 17%. Currently, the shares of the company are selling at Sh.21.70 on the stock exchange cum 1996 dividend. The debentures are selling at Sh.89.50 ex-interest.
The corporate tax is 35%.

Required:

a) Using the dividend growth model, estimate what a fundamental analyst might consider to be the intrinsic value of Kevinko"s shares. Comment on this value. (10 marks)

b) If interest rates were to go by 5% what would be the effect of this increase on the company"s share price? (5 marks)

c) What is the difference between fundamental analysis and a chartist"s analysis in the valuation of shares? (5 marks)

(Total: 20 marks)

QUESTION FOUR

Lancaster Engineering Inc. (LEI) has the following structure, which it considers to be optimal:

Debt	25%
Preferred stock	15
Common equity	60
	100%

LEI"s expected net income this year is Sh.34,285.72; its established dividend payout ratio is 30 percent; its marginal tax rate is 40 percent; and investors expect earnings and dividends to grow at a constant rate of nine percent in the future. LEI paid a dividend of Sh.3.60 per share last hear, and its stock currently sells at a price of Sh.60 per share.

LEI can obtain new capital in the following ways:

Common: New common stock has a flotation cost of ten percent for up to Sh.12,000 of new stock and 20percent for all common stock over Sh.12,000.

Preferred: New preferred stock with a dividend of Sh.11 can be sold to the public at a price of Sh.100 pershare. However, flotation costs of Sh.5 per share will be incurred for up to Sh.7,500 of preferred stock, and flotation costs will rise to Sh.10 per share, or ten percent, on all preferred stock over Sh.7,500.

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Debt: Up to Sh.5,000 of debt can be sold at an interest rate of 12 percent; debt in the range of Sh.5,001 toSh.10,000 must carry an interest rate of 14 percent; and all debt over Sh.10,000 will have an interest rate of 16 percent.

LEI has the following independent opportunities:

PROJECT	COST AT t= 0 (SH.)	ANNUAL NET CASH FLOW (SH.)	PROJECT LIFE (YEARS)	IRR (%)
A	10,000	2,191.20	7	12.0
B	10,000	3,154.42	5	17.4
C	10,000	2,170.18	8	14.2
D	20,000	3,789.48	10	13.7
E	20,000	5,427.84	6	?

(a) Find the break points in the MCC schedule
(b) Determine the cost of each capital structure component.
(c) Calculate the weighted average cost of capital in the interval between each break in the MCC schedule.
(d) Calculate the IRR for Project E.
(e) Construct a graph showing the MCC and IOS schedules.
(f) Which projects should LEI accept?

QUESTION FIVE

Components Manufacturing Corporation (CMC) has an all-common-equity capital structure. It has 200,000 shares of Sh.2 par value common stock outstanding. When CMC"s founder, who has also its research director and most successful inventor; retired unexpectedly to the South Pacific in late 2000, CMC was left suddenly and permanently with materially lower growth expectations and relatively few attractive new investment opportunities. Unfortunately, there was no way to replace the founder"s contributions to the firm.

Previously, CMC found it necessary to plow back most of its earnings to finance growth, which averaged 12 percent per year. Future growth at a five percent rate is considered realistic, but that level would call for an increase in the dividend payout. Further, it now appears that new investment projects with at least the 14 percent rate of return required by CMC"s stockholders (k_s= 14%) would amount to only Sh.800,000 for 2001in comparison to a projected Sh.2,000,000 of net income. If the existing 20 percent dividend payout were continued, retained earnings would be Sh.1.6 million in 2001, but as noted, investments that yield the 14 percent cost of capital would amount to only Sh.800,000.

The one encouraging thing is that the high earnings from existing assets are expected to continue, and net income of Sh.2 million is still expected for 2001. Given the dramatically changed circumstances, CMC"s management is reviewing the firm"s dividend policy.

(a) Assuming that the acceptable 2001 investment projects would be financed entirely by earnings retained during the year, calculate DPS in 2001 if CMC follows the residual divided policy.

(b) What *payout ratio* does your answer to part a imply for 2001?

(c) If a 60 percent payout ratio is maintained for the foreseeable future, what is your estimate of the present market price of the common stock? How does this compare with the market price that should have prevailed under the assumptions existing just before the news about the founder"s retirement? If the two values of P_0 are different, comment on why.

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(d) What would happen to the price of the stock if the old 20 percent payout were continued? Assume that if this payout is maintained, the average rate of return on the retained earnings will fall to 7.5 percent and the new growth rate will be

g = (1.0 – Payout ratio)(ROE)

= (1.0 – 0.2)(7.5%) = (0.8)(7.5%) = 6.0%

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MOCK 3

QUESTION ONE

Summarised financial data for TYR plc is shown below:

TYR plc

Year	Post-tax earnings (Sh. million)	Dividends (Sh. million)	Issued shares (million)	Share price (Sh.)
1997	86.2	34.5	180	36.00
1998	92.4	36.2	180	41.00
1999	99.3	37.6	180	34.50
2000	134.1	51.6	240	45.90
2001	148.6	53.3	240	44.80

Year	All-share index	Inflation rate
1997	2895	6%
1998	3300	5%
1999	2845	4%
2000	2610	3%
2001	2305	3%

TYR"s cost of equity is estimated to be 11%.

Required:

(a) Explain, with supporting evidence, the current dividend policy of TYR plc, and briefly discuss whether or not this appears to be successful. (10 marks)

(b) Identify and consider additional information that might assist the managers of TYR in assessing whether the dividend policy has been successful. (5 marks)

(c) Evaluate whether or not the company"s share price at the end of 2001 was what might have been expected from the Dividend Growth Model. Briefly discuss the validity of your findings. (5 marks)

(Total: 20 marks)

QUESTION TWO

Summarised financial details of Jetter plc are shown below:
Extract from the profit and loss account.

	Sh. million
Turnover	582
Profit before tax	93
Taxation (30%)	(28)
Profit after tax	65
Dividends	(26)
Retained earnings	39
Extract from the balance sheet	
Fixed assets (net)	210
Current assets	186
Current liabilities	(153)
	243
Financed by:	
Ordinary shares (25 pence par)	50

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Reserves	122
12% debentures June 2006	71
	243

The company"s ordinary shares are currently trading at Sh.22.00, and the debentures at Sh.105.50. The debenture is redeemable at its par value of Sh.100.

The company"s equity beta is 1.25.

Jetter plc is considering investing in one of three projects. The company has Sh.50 million that is currently earning 5.8% in short-term money market deposits. Any surplus funds after the investment in one of the projects will continue to be invested in the money market.

The company has employed an external consultant to estimate risk/return data relevant to the three projects.

	Project 1	**Project 2**	**Project 3**
Investment cost (£ million)	35	40	28
Estimated correlation of returns with the market	0.76	0.63	0.58
Standard deviation of returns	8.4%	4.6%	14.3%
Expected return (IRR)	15%	11%	17%

Market return 15% per annum
Market standard deviation of returns 6.9%
Risk free rate 6% per annum

Required:

(a) Evaluate which project should be selected. Do not use information provided later in the question requirements in your evaluation.
State clearly any assumptions that you make in all parts of this question. (8 marks)

(b) Estimate Jetter"s cost of capital prior to undertaking the investment. Briefly discuss (do not calculate) what effect the project selected in (a) is likely to have on Jetter"s cost of capital.

The profitability index of 1.3 also relates to this part of the question. (8 marks)

(c) The consultant has suggested that beta estimates should be adjusted by using the formula: [(0.67 x unadjusted beta) + 0.33] in any estimate of required returns.
Briefly discuss the reason for using an adjusted beta such as this: (4 marks)

(Total: 20 marks)

QUESTION THREE

The managers of Strayer plc are investigating a potential Sh.25 million investment. The investment would be a diversification away from existing mainstream activities and into the printing industry. Sh.6 million of the investment would be financed by internal funds, Sh.10 million by a rights issue and Sh.9 million by long term loans. The investment is expected to generate pre-tax net cash flows of approximately Sh.5 million per year, for a period of ten years. The residual value at the end of year ten is forecast to be Sh.5 million after tax. As the investment is in an area that the government wishes to develop, a subsidized loan of Sh.4 million out of the total Sh.9 million is available. This will cost 2% below the company"s normal cost of long-term debtfinance, which is 8%.

Strayer"s equity beta is 0.85, and its financial gearing is 60% equity, 40% debt by value. The average equity beta in the printing industry is 1.2, and average gearing 50% equity, 50% debt by market value.

The risk free rate is 5.5% per annum and the market return 12% per annum.

Issue costs are estimated to be 1% for debt financing (excluding the subsidized loan), and 4% for equity financing. These costs are not tax allowable.

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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 FOUR

(a) Briefly discuss the meaning and importance of the terms „delta", „theta" and „vega" (also known as kappa or lamba) in option pricing. (8 marks)

(b) Assume that your company has invested in 100,000 shares of Unglow plc, a manufacturer of light bulbs. You are concerned about the recent volatility in Unglow"s share price due to theunpredictable weather in the United Kingdom. You wish to protect your company"s investment from a possible fall in Unglow"s share price until winter in three months" time, but do not wish to sellthe shares at present. No dividends are due to be paid by Uniglow during the next three months.

Market data:
Uniglow"s current share price: Sh.20
Call option exercise price: Sh.20
Time to expiry: 3 months
Interest rates (annual): 6%
Volatility of Uniglow"s 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 hedge that is expected to protect the investment against changes in the share price until winter. Delta may be estimated using $N(d_1)$. (8 marks)

(ii) Comment upon whether or not such a hedge is likely to be totally successful. (4 marks)

(Total: 20 marks)

QUESTION FIVE

You have been asked to produce a briefing memo for senior management at your company on the subject of mergers and acquisitions. Your memo should identify and discuss:

(a) Possible synergies that might occur in mergers and acquisitions. (8 marks)

(b) Potential problems in the achievement of synergies. (8 marks)

(c) Whether or not mergers and acquisitions should be undertaken to achieve corporate diversification only. (4 marks)

(Total: 20 marks)

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MOCK 4

QUESTION ONE

The finance department of Beela Electronics has been criticized by the company"s board of directors for notundertaking an assessment of the political risk of the company"s potential direct investments in Africa. The board has received an interim report from a consultant that provides an assessment of the factors affecting political risk in three African countries. The report assesses key variables on a scale of –10 to +10, with –10 the worst possible score and +10 the best.

	Country 1	Country 2	Country 3
Economic growth	5	8	4
Political stability	3	-4	5
Risk of nationalization	3	0	4
Cultural compatibility	6	2	4
Inflation	7	-6	6
Currency convertibility	-2	5	-4
Investment incentives	-3	7	3
Labour supply	2	8	-3

The consultant suggests that economic growth and political stability are twice as important as the other factors.

The consultant states in the report that previous clients have not invested in countries with a total weighted score of less than 30 out of a maximum possible 100 (with economic growth and political stability double weighted). The consultant therefore recommends that no investment in Africa should be undertaken.

Required:

(a) Discuss whether or not Beela electronics should use the technique suggested by the consultant in order to decide whether or not to invest in Africa. (10 marks)

(b) Discuss briefly how Beela might manage political risk if it decides to invest in Africa. (10 marks)

(Total: 20 marks)

QUESTION TWO

Discuss the main features of:

(i) Corporate share repurchases (buy-backs); and
(ii) Share (stock) splits;

and why companies might use them. Include in your discussion comment on the possible effects on share price of share repurchases and share (stock) splits in comparison to the payment of dividends.

(Total: 20 marks)

QUESTION THREE

Maltec plc is a company that has diversified into five different industries in five different countries. The investments are each approximately equal in value. The company"s objective is to reduce risk throughdiversification, and it believes that the return on any investment is not correlated with the return on any other investment. The estimated risk and return (in present value terms) of the five investments are shown below:

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Investments	Risk (% standard deviation)	Return (%)
1	8	14
2	10	16
3	7	12
4	4	9
5	16	22

Required:

(a) Estimate the risk and return of the portfolio of five investments, and briefly explain the significance of your results. (10 marks)

(b) Discuss the validity to investors of Maltec"s objective of risk reduction through international diversification. (10 marks)

(Total: 20 marks)

QUESTION FOUR

Discuss how government actions can influence the tasks of the financial manager and explain how these actions can affect the attainment of financial objectives. (20 marks)

QUESTION FIVE

Justify and criticize the usual assumption made in financial management literature that the objective of a company is to maximize the wealth of its shareholders. (Do not consider how this wealth is to be measured).

(Total: 20 marks)

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MOCK 5

QUESTION ONE

Excluding foreign exchange risks, discuss, with examples, how the risks of foreign trade might be managed. (12 marks)

QUESTION TWO

Fuelit plc is an electricity supplier in the UK. The company has historically generated the majority of its electricity using a coal fuelled power station, but as a result of the closure of many coal mines and depleted coal resources, is now considering what type of new power station to invest in. The alternatives are a gas fuelled power station, or a new type of efficient nuclear power station.

Both types of power station are expected to generate annual revenues at current prices of Sh.800 million. The expected operating life of both types of power station is 25 years.

Financial estimates:

	Gas (Sh. million)	Nuclear (Sh. million)
Building costs	600	3,300
Annual running costs (at current prices):		
Labour costs	75	20
Gas purchases	500	-
Nuclear fuel purchases	-	10
Sales and marketing expenses	40	40
Customer relations	5	20
Interest expense	51	330
Other cash outlays	5	25
Accounting depreciation	24	132

Other information:

(i) Whichever power station is selected, electricity generation is scheduled to commence in three years time.

(ii) If gas is used most of the workers at the existing coal fired station can be transferred to the new power station. After tax redundancy costs are expected to total Sh.4 million in year four. If nuclear power is selected fewer workers will be required and after tax redundancy costs will total Sh.36 million, also in year four.

(iii) Both projects would be financed by Eurobond issues denominated in Euros. The gas powered station would require a bond issue at 8.5% per year, the bond for the nuclear project would be at 10% reflecting the impact on financial gearing of a larger bond issue.

(iv) Costs of building the new power stations would be payable in two equal instalments in one and two years time.

(v) The existing coal fired power station would need to be demolished at a cost of Sh.10 million in three years time.

(vi) The company"s equity beta is expected to be 0.7 if the gas station is chosen and 1.4 if the nuclearstation is chosen. Gearing (debt to equity plus debt) is expected to be 35% with gas and 60% with nuclear fuel.

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(vii) The risk free rate is 4.5% per year and the market return is 14% per year. Inflation is currently 3% per year in the UK and an average of 5% per year in the member countries of the Euro bloc in the European Union.

(viii) Corporate tax is at the rate of 30% payable in the same year that the liability arises.

(ix) Tax allowable depreciation is at the rte of 10% per year on a straight line basis.

(x) At the end of twenty-five years of operations the gas plant is expected to cost Sh.25 million (after tax) to demolish and clean up the site. Costs of decommissioning the nuclear plant are much less certain, and could be anything between Sh.500 million and Sh.1,000 million (after tax) depending upon what form of disposal is available for nuclear waste.

Required:

(a) Estimate the expected NPV of EACH OF investment in a gas fuelled power station and investment in a nuclear fuelled power station.
State clearly any assumptions that you make.
(NB: It is recommended that annuity tables are used wherever possible) (20 marks)

(b) Discuss other information that might assist the decision process. (8 marks)
(Total: 28 marks)

QUESTION THREE

(a) „The objective of financial management is to maximize the value of the firm."

You are required to discuss how the achievement of this objective might be compromised by the conflicts which may arise between the various stakeholders in an organization. (10 marks)

(b) You are required to discuss the arguments for and against the introduction of statutory controls on corporate governance. (10 marks)
(Total: 20 marks)

QUESTION FOUR

The following data relates to a large company operating in the electronics industry:

	1994	1995	1996	1997	1998
After tax earnings (Sh. million)	17,000	19,500	25,500	29,500	47,200
Dividend per share (Sh.)	97.50	110.00	127.50	140.00	155.00
Number of ordinary shares (million)	508	600	650	695	930
Average share price (Sh.)	74.00	87.50	69.00	82.00	101.20
Net capital investment (Sh. million)	210	270	340	410	520
Annual increase in inflation (%)	4	4	3	3	3

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

Required:

(a) Briefly discuss the factors that are likely to influence the company"s dividend policy, and (10 marks)

(b) Discuss whether or not the institutional shareholder"s criticism is likely to be valid. (10 marks)
(Total: 20 marks)

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QUESTION FIVE

Describe the main types of foreign exchange rate system. Briefly discuss how such systems might affect the ability of financial managers to forecast exchange rates. **(20 marks)**

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ANSWERS - MOCKS

SUGGESTED ANSWERS TO MOCK EXAMS

SOLUTIONS FOR PAPER 1

MOCK 1

SUGGESTED SOLUTIONS

QUESTION ONE

a) Compute the beta of each of the four projects.

$$\text{Beta} = \frac{\text{Correlation } r_m, r_i, \sigma_i}{\sigma_m}$$

Project	1	Beta	=	$\frac{0.55 \times 15}{13}$	=	0.635
	2	Beta	=	$\frac{0.75 \times 20}{13}$	=	1.154
	3	Beta	=	$\frac{0.84 \times 14}{13}$	=	0.905
	4	Beta	=	$\frac{0.62 \times 18}{13}$	=	0.858

Compute the overall portfolio Beta

$$\sum_{t=1}^{n} B_n w_n$$

Where: Bn = Beta for any project n
w_n = % weight of project n

Weight	Beta	Weighted Beta
0.28	0.635	0.1778
0.17	1.154	0.1962
0.31	0.905	0.2806
0.24	0.858	0.2059
Protfolio Beta		0.8605
		====

Using CAPM, return of a portfolio (Rp) = 5% + (14% - 5%)0.8605 = 12.75

Compute the expected % portfolio return

(Erp) from historical returns
(0.28 x 10%) + (0.17 x 18%) + (0.31 x 15%) + (0.24 x 13%) = 13.63%

Rp = 12.75%

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Erp = 13.63% Undervalued shares

b) Reasons why the results may not correctly identify whether the share price is over or undervalued.

Use of historical data on returns, risk and correlation
The market is not fully efficient as assumed by CAPM
Market risk premium (Rm-Rf) is not constant since Rm & Rf will vary overtime
Restrictive assumptions of CAPM
CAPM is a single factor model
CAPM i s a single period model.

QUESTION TWO

a) Financial Engineering

- Design, development and implementation of innovative financial instruments and processes and the formulation of creative solutions to problems in finance.

It is concerned with three critical issues:

- Securities innovations which would add value to the firm and shareholders e.g issue a security which increases the present value of tax shields available to the issues without increasing the investors tax liability.
- Innovative financial processes e.g on-line banking, use of central depositing system (CDS) in stock market trading to reduce transaction costs etc.
- Creative strategies to corporate finance problem.
- Involves the use of tax-effective cash management strategies and corporate restructuring due to internal and external factors e.g leveraged buyout, sale and lease back, outsourcing of financial services, project finance etc.

b) Factors responsible for financial innovations:

- High level of transaction costs
- Need to reduce agency costs
- Existing opportunities to increase liquidity of assets e.g. factoring of debtors
- Regulatory and legislative changes hence volatility of interest rate and exchange rates

Use of interest rate swaps

- Volatility of securities prices hence the use of futures and options
- Tax asymmetric that can be exploited to produce tax savings for the investors and

Issues of securities.

- Technological advancement and related factors.
- Academic work that results in advance in financial theories or better understanding of the risk – return characteristics of existing securities.

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QUESTION THREE

a) If issue price is Sh.32

No. of new shares to issue = $\frac{\text{Sh.15 million}}{32}$

= 468,750 shares = 0.46875 shares

	Sh.M
1.2M shares @ 361 each	43.2
0.468750 shares @ 32 each	15.0
1.66875	

Ex-right MPS = $\frac{\text{Sh.58.2}}{\text{1.66875 shares}}$ 34.88

Value of a right = Cum-right MPS – ex-right MPS

= 36.00 – 34.88 = Sh.1.12

b) If issue price is Sh.25:

New shares issue = $\frac{\text{Amount of raise}}{\text{Issue price}}$ = $\frac{\text{Sh.15 M}}{\text{Sh.25}}$

= 600,000 shares

1.2M shares @ Sh.36 MPS	=	43.2M
0.6M shares @ Sh.25 issue price		15.0
1.8M		58.2M

Therefore Ex-right MPS = $\frac{\text{Sh.58 .2M}}{\text{1.8M shares}}$ = Sh.32.33

Value of a right = Cum-right MPS – Ex-right MPS

= Sh.36 – Sh.32.33 = Sh.3.67

c) Issue price to adopt

- A low issue price leads to high number of shares being issued which will lead to dilution in future EPS.
- A high issue price leads to few shares being issued thus less dilution in future EPS.
- Therefore the preferable issue price is Sh.32 since few shares are issued (468,750 shares) and thus lesser dilution in future EPS. The EPS is one of the critical variables which investors look for before making investment decisions.

d) The factors which might invalidate the calculation are as follows:

- If the cum-right MPS was to change
- If floatation costs associated with the issue are considered
- If all the shares are not subscribed for during the rights issue.

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QUESTION FOUR

a) The great benefits to shareholders can only be evaluated from the perspective of post-merger EPS.

Determine the current number of ordinary shares:= $\frac{\text{Ordinary share capital}}{\text{Par value per share}}$

	Yote Ltd	Toa Ltd
No. of ordinary shares =	$\frac{\text{Sh.20M}}{\text{Sh.0.5}}$ = 40M	$\frac{\text{Sh.15 M}}{\text{Sh.0.10}}$ = 150M

Yote Ltd already own 2% of shares of Toa Ltd.
Therefore it can only acquire the remaining 98% i.e 98% x 150M shares = 147M shares.

1 share of Yote Ltd = 6 shares of Toa Ltd.
= 147M shares of Toa

New shares issued by Yote Ltd = $\frac{\text{147M shares x 1}}{6}$
= 24.5M shares

Current shares of Yote Ltd	=	40 M
New shares issued	=	24.5M
Total new shares	=	64.5M

Profits to ordinary shareholders = 7.8M + 6.5M
= Sh.14.3M – (2% x 6.5M)
= Sh.14.17M

Therefore merger EPS = $\frac{\text{Sh.14.17}}{\text{64.5M shares}}$ = 0.220

Current EPS = $\frac{\text{Sh.7.8M}}{\text{40M shares}}$ = 0.195

New EPS of Yote Ltd	0.220
Old EPS of Yote Ltd	0.195
Increase in EPS	0.025

% increase = $\frac{0.025}{0.195}$ x 100 = 12.8% = 13%

- Apart from increase in EPS, other benefit of diversification would be increased borrowing capacity which increases the interest tax shield to the shareholders of Yote Ltd.
- However, as long as shareholders are holding well-diversified portfolios, diversification through mergers and acquisitions will not be beneficial to them.
- The assumption made is that there are no synergistic effects.

b) Post-merger MPS

Pre-merger M.V of Yote Ltd = 40M shares @ Sh.3.20	=	Sh.128M
Pre-merger M.V of Toa Ltd = 150M shares @ Sh.0.45	=	Sh. 67.5
		Sh.195.5

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The market value of Yote Ltd will not change and it is simple equal to the combined market values. There is no synergistic effects.

No. of ordinary shares after merger = 64.5M shares.

Post merger MPS = $\frac{\text{Sh.195.5M}}{64.5}$ = Sh.3.023

c) Other forms of financing the merger are:

Cash
Issue of preference shares
Issue of debentures including mezzanine financial (convertible debentures)
An offer which comprises a combination of the above 3 methods.

QUESTION FIVE

a) Leasing Option

After tax lease rentals = 996,000(1 – 0.35) = 647,400

Discounting rate = After tax cost of debt
(c) 22%(1 – 0.35) = 14.3%

P.V = 647,400 x $PVAF_{14.3\%,8}$
= 647,400 x 4.593 = 2,973,508.2

Buying Option

Depreciation p.a. = $\frac{5{,}200{,}000 - 400{,}000}{8 \text{ yrs}}$ = 600,000 p.a

Depreciation tax shield = 600,000 x 0.35 = 210,000 p.a.

Buying price	(5,200,000)
P.V of depreciation tax shield	
210,000 x $PVAF_{14.3\%,8}$ = 210,000 x 4.593	964,530
P.V of salvage value	
400,000 x $PVAF_{14.3\%,8}$ = 400,000 x 0.343	137,200
Net cost of buying	(4,098,270
Net cost of leasing	(2,973,508.2)

Net benefit of leasing = -297,350.2 - -4,098,270 = 1,124,761.8

Since net benefit of leasing is positive, lease the asset.

b) A 20% investment allowance would lead to additional tax shield in addition to the depreciation tax shield.

Investment allowance = 20% x 5,200,000 = 1,040,000 Tax shield = 1,040,000 x 0.35 = 364,000

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Assuming the allowance is granted at end of year 1, the P.V of the tax shield would be 364,000 x $PVAF_{14.3\%,1}$ = 364,000 x 0.875 = 381,500

This would reduce the net cost of buying new cost = (4,098,270) + 318,500 = (3,779,770)

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MOCK 2

SUGGESTED SOLUTIONS

QUESTION ONE

a) Reasons for foreign investment by MNC.

- To seek new markets for their products
- To seek growth opportunities outside their home markets
- To take advantage of tax incentives offered in other countries
- To avoid regulatory and political bottlenecks in their home country
- To diversify their operations and reduce their overall risk
- To seek new technology in form of scientific ideas for design of their products and services
- Increase production efficiency by moving to countries with low production costs.

b) Political (sovereign) risk is a probability that political event will impact adversely in the domestic and foreign firms. The host government may interfere with the operations of a MNC in anumber of ways:

- Non-discriminatory interferences e.g no transfer price, non-convertibility of the currency of host nation etc.
- Discriminatory interference e.g special tax rates, government insisting on a joint venture with MNC etc.
- Discriminatory sanctions e.g. ending the right to remit or repatriate profits
- Wealth deprivation i.e takeover of a MNC by the government without any compensation.
- Anti-trust policies
- Fiscal & monetary policies e.g invest a portion of liquid cash in government to bills and treasury bonds etc.

c) Steps to minimise political risk

- Investment insurance e.g from multi-national investment guarantee agency (MIGA)
- Forecast political interference in capital budgeting process
- Negotiation with the host government before investing
- Make prior arrangement on issues relating to transfer pricing, profit repatriation etc.
- Joint venture with the host government
- Sale of shares in the host country to raise capital
- Local supply of goods and control of marketing
- Pre-planned disinvestments and cease operations due to political interference

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QUESTION TWO

a) Unamortised issue costs of old bonds

$\frac{10 \text{ yrs}}{15 \text{ yrs}}$ x 390,000 = 260,000

Tax savings = 260,000 x 0.35 = Sh.91,000

b) The new bond issuance costs would be amortised over 10 years.

$\frac{525,000}{10 \text{ yrs}}$ = 52,500

Tax savings p.a. 52,500 x 0.35 = Sh.18,375

c) Call premium:

Call premium = 1120 – 1000 = 120 per Sh.1,000 bond.

Therefore: $\frac{\text{Sh.120 x 100M}}{1,000}$ = 12,000,000

After tax call premiums = 12,000,000 x (1-0.35) = Sh.7,800,000

Therefore after tax cash outflow of all premium = Sh.7,800,000.

d) Incremental initial capital

Call premium before tax	Sh.	12,000,000
Issue costs of new bond		525,000
		12,525,000
Less tax savings:		
Call premium tax savings 12,000,000 x 0.35		(4,200,000)
Unamortised issuance costs = 260,000 x 0.35		(91,000)
Net cash outlay of refunding		8,234,000

e) Cash savings p.a.

New bond		Sh."000"
Interest charges p.a. = 20% x 100m		20,000
Less tax savings:		
Interest charges p.a.	20,000	

Issuance cost p.a. = $\frac{525,000}{10\text{yr s}}$ = $\frac{52.5}{20,052.5}$

Tax savings = 20,052.5 x 0.35		7,018.4
		12,981.6
Old bond		
Interest charges p.a. 24% x 100M		24,000
Less tax savings		
Int. charges p.a.	24,000	

Unamortised costs p.a. = $\frac{260,000}{10\text{yr s}}$ = $\frac{26}{24,026}$

Tax saving = 24,026 x x 0.35		(8,409.1)
		15,590.9

Net savings p.a. = 15,590.9 – 12,981.6 = 2,609.3 p.a.

f) Discounting rate = after tax cost of new debt = 20%(1 – 0.35) = 13%

$PVAF_{13\%,10}$ = 5.426

P.V of savings = 2,609.3 x 5.426 =	14,156.062
Less initial capital (in (e) above)	(8,234.000)
NPV	5,924.062

Decision: since NPV is +ve, refund the bond.

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QUESTION THREE

a) *Compute the Ex-div MPS

Cum-div MPS		Sh.21.70
Less DPS – 1996 =	2,800,000	
	4,000,000 shares	Sh. 0.70
Ex-div MPS		Sh.21.00

Compute the market value of debt and equity.

M.V of equity (E) = $\frac{\text{Sh.20 M}}{\text{Sh. 5 par value}}$ x Sh.21 = 84M

M.V of debt (D) = $\frac{\text{Sh.15M}}{\text{Sh.100 par value}}$ x Sh.89.50 = 13.425

Determine the equity Beta of the firm

$$Bo = Be\frac{E}{E + D(1-T} + Bd\frac{D(1-T)}{E + D(1-T)}$$

Where Bo = Overall/asset Beta =
0.763 Be = Equity Beta
Bd = debt Beta = 0.20
D(1 – T) = After tax market value of debt
= Sh.13,425M(1-0.35) =
8.73M E = MV of equity = 84M
D(1-T) + E = 84M + 8.73 = Sh.92.73M

$$0.763 = Be\frac{84}{92.73} + 0.20\left(\frac{8.73}{92,73}\right)$$

0.763 = 0.906Be + 0.019

0.906Be = 0.744

Be = 0.82

Determine cost of equity, Ke, using CAPM
Ke = 12% + (17% - 12%)0.82 = 16.1% = 16%

Determine the current growth rate 1994 dividends $(1 + g)^n$ = 1996 dividends $2335(1 + g)^2 = 2,800$

$$\sqrt{(1+g)^2} = \frac{2800}{2335} = \sqrt{1.1991}$$

1+g = 1.095
g = 0.095 = 9.5%

Using the 1996 DPS, determine the P.V of all expected dividends @ 16% discounting rate.

Year	Expected DPS		$PVIF_{16\%,n}$	P.V
1	$0.70(1.25)^1$ = 0.88	0.862	0.76	
2	$0.70(1.25)^2$ = 1.09		0.743	0.81
3-∞	$\frac{1.09(1 .095)}{0.16 – 0.095}$ = 18.36		0.743	13.64

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Total P.V = intrinsic value		Sh.	15.21
Ex-div MPS	Sh.	21.00	

Therefore the share is over-valued and should be sold.

b) If interest rate went up by 5%, the cost of equity will certainly go up by 5% to 21% i.e 16% + 5%. Using 21% as the discounting rate, then:

Year	Expected DPS	$PVIF_{21\%}n$	P.V
1	0.88	0.826	0.73
2	1.09	0.683	0.75
3	18.36	0.683	12.54
New intrinsic value			14.02

The share price would decline from Sh.15.21 to Sh.14.02.

c) Fundamental analysis:

- This view of valuation states that the real or intrinsic value of a security is equal to the total P.V of all expected cash flows (dividends or interest) from the security. However, this is influenced by some fundamentals about the company such as:
- Capital structure and level of gearing
- P/E ratio
- Dividend policy and stability of DPS
- Earnings power and volatility of Eps
- Economic conditions
- Past performance of the firm
- Recent ratio analysis
- Political stability in the country

Chartist (also called technical) analysis involves the use of historical or past price pattern to predict the future price pattern. The believe is that "History shall repeat itself".

Chartists use graphs, and charts as their main tools of analysis. They have identified 3 types of price trends or patterns.

Primary trend – for price pattern observed over a long period of time e.g on yearly basis Secondary also called seasonal trend is related to monthly price trends
Tertiary – for price pattern observed over a very short period of time e.g on weekly or daily basis.

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QUESTION FOUR

(a) A break point will occur each time a low-cost type of capital is used up. We establish the break points as follows, after first noting that LEI has Sh.24,000 of retained earnings:

Retained earnings = (Total earnings)(1.0 – Payout)
= Sh.34,285.72(0.7)
= Sh.24,000.

$$\text{Break point} = \frac{\text{Total amount of low-cost capital of a given type}}{\text{Proportion of this type of capital in the capital structure}}$$

CAPITAL USED UP	BREAK POINT CALCULATION		**BREAK NUMBER**
Retained earnings	$BP_{RE} = \frac{Sh.24,000}{0.60}$	= Sh.40,000	2
10% flotation common	$BP_{10\%E} = \frac{Sh.24,000 + Sh.12,000}{0.60}$	= Sh.60,000	4
5% flotation preferred	$BP_{5\%P} = \frac{Sh.7,500}{0.15}$	= Sh.50,000	3
12% debt	$BP_{12\%D} = \frac{Sh.5,000}{0.25}$	= Sh.20,000	1
14% debt	$BP_{14\%D} = \frac{Sh.10,000}{0.25}$	= Sh.40,000	

Summary of break points:

There are three common equity costs and hence two changes and, therefore, two equity-induced breaks in the MCC. There are two preferred costs and hence one preferred break. There are three debt costs and hence two debt breaks.

The numbers in the third column of the table designate the sequential order of the breaks, determined after all the break points were calculated. Note that the second debt break and the break for retained earnings both occur at sh.40,000.

The first break point occurs at Sh.20,000, when the 12 percent debt is used up. The second break point, Sh.40,000, results from using up both retained earnings and the 14 percent debt. The MCC curve also rises at Sh.50,000 and Sh.60,000, as preferred stock with a 5 percent flotation cost and common stock with a 10 percent flotation cost, respectively are used up.

(b) Component costs within indicated total capital intervals are as follows: Retained earnings (used in interval Sh.0 to Sh.40,000):

$$k_s = \frac{\hat{D}_1}{P_0} + g = \frac{D_0(1+g)}{P_0} + g$$

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$$= 0.09\frac{Sh.60}{Sh.3.60(1.09)} +$$

$$= \quad 0.0654 + 0.09 \quad = \quad 15.54\%$$

Common with F = 10% (Sh.40,001 to Sh.60,000):

$$k_e = \frac{\hat{D}_1}{P_0(1.0 - F)} + g = \frac{Sh.3.924}{Sh.60(0.9)} + 9\% \quad = \quad 16.27\%$$

Common with F = 20% (over Sh.60,000):

$$k_e = \frac{Sh.3.924}{Sh.60(0.8)} + 9\% \quad = \quad 17.18\%$$

Preferred with F = 5%(Sh.0 to Sh.50,000):

$$k_p = \frac{D_p}{P_0 - Fotationcosts} = \frac{Sh.11}{Sh.100(0.95)} \quad = \quad 11.58\%$$

Preferred with F = 10% (over Sh.50,000):

$$k_p = \frac{Sh.11}{Sh.100\ (0.9)} \quad = \quad 12.22\%$$

Debt at k_d = 12% (Sh.0 to Sh.20,000)

$$K_{dT} = k_d(1 - T) = 12\%(0.6) \quad = \quad 7.20\%$$

Debt at k_d = 14% (Sh.20,001 to Sh.40,000):

$$K_{dT} = 14\%(0.6) \quad = \quad 8.40\%$$

Debt at k_d = 16% (over Sh.40,000):

$$K_{dT} = 16\%(0.6) \quad = \quad 9.60\%$$

(c) WACC calculations within indicated total capital intervals:

(1) Sh.0 to Sh.20,000 (debt = 7.2, preferred = 11.58%, and retained earnings [RE] = 15.54%):

$WACC_1 = w_dK_{dT} + w_pk_p + w_sk_s$
$= 0.25(7.2\%) + 0.15(11.58\%) + 0.60(15.54\%) = 12.86\%.$

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(2) Sh.20,001 to Sh.40,000 (debt = 8.4%, preferred = 11.58%, and RE = 15.54):

$WACC_2$ = 0.25(8.4%) + 0.15(11.58%) + 0.60(15.54%) = 13.16%

(3) Sh.40,001 to Sh.50,000 (debt = 9.6%, preferred = 11.58%, and equity = 16.27): $WACC_3$ = 0.25(9.6%) + 0.15(11.58%) + 0.60(16.27%) = 13.90%

(4) Sh.50,001 to Sh.60,000 (debt = 9.6%, preferred = 12.22%, an equity = 16.27 $WACC_4$ = 0.25(9.6%) + 0.15(12.22%) + 0.60(16.27% = 14.00%

(5) Over Sh.60,000 (debt = 9.6%, preferred = 12.22%, and equity = 17.18%):

$WACC_5$ = 0.25(9.6%) + 0.15(12.22%) + 0.60(17.18%) = 14.54%

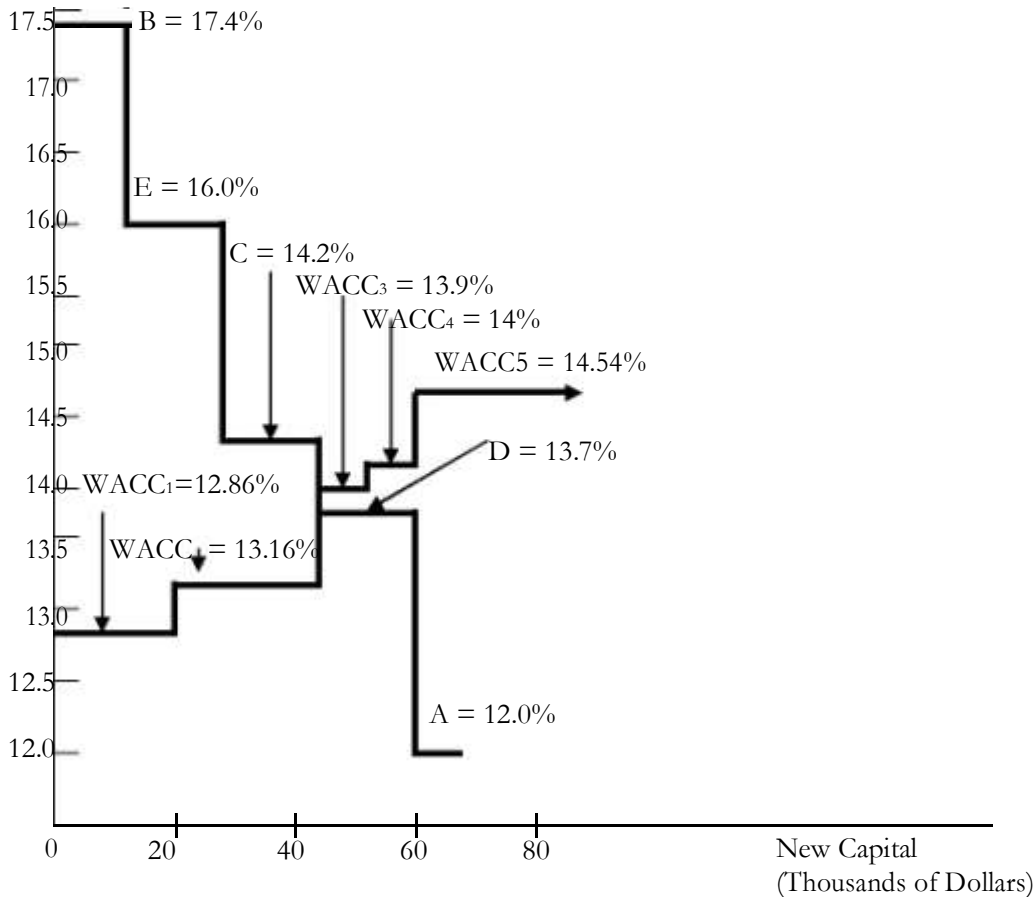
(d) IRR calculation for Project E:

PVIFA k,6=~~Sh.5,427.84~~ Sh.20,000 = 3.6847

This is the factor for 16 percent, so IRR_E = 16%
Alternatively, N = 6, PV = -20000, PMT = 5427.84, and I = ? I = 16.00%

(e) See the graph of the MCC and IOS schedules for LEI below.

LEI: MCC AND IOS SCHEDULES Percent



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(f) LEI should accept Projects B, E, and C. It should reject Projects A and D because their IRRS do not exceed the marginal costs of funds needed to finance them. The firm"s capital budget would total Sh.40,000.

QUESTION FIVE

(a)

Projected net income	Sh.2,000,000
Less projected capital investments	(800,000)
Available residual	Sh.1,200,000
Shares outstanding	200,000

(b) DPS = Sh.1,200,000/200,000 shares = Sh.6 = $\hat{D}_1$
EPS = Sh.2,000,000/200,000 shares = Sh.10
Payout ratio = DPS/EPS = Sh.6/Sh.10 = 60%; or

Total dividends/NI = Sh.1,200,000/Sh.2,000,000 = 60%

(c) Currently, $P_0 = \frac{D1}{k_s - g} = \frac{Sh.6}{0.14 - 0.05} = \frac{Sh.6}{0.09} = Sh.66.67$

Under the former circumstances, $\hat{D}_1$ would be based on a 20 percent payout on Sh.10 EPS, or Sh.2. with k_s = 14% and g = 12%, we solve for P_0:

$$P_0 = \frac{\hat{D}1}{k_s - g} = \frac{Sh.2}{0.14 - 0.12} = \frac{Sh.2}{0.02} = Sh.100$$

Although CMC has suffered a severe setback, its existing assets will continue to provide a good income stream. More of these earnings should now be passed on to the shareholders, as the slowed internal growth has reduce the need for funds. However, the net result is a 33 percent decrease in the value of the shares.

(d) If the payout ratio were continued at 20 percent, even after internal investment opportunities had declined, the price of the stock would drop to Sh.2/(0.14 – 0.06) = Sh.25 rather than to sh.66.67. Thus, an increase in the dividend payout is consistent with maximizing shareholder wealth.

Because of the downward-sloping IOS curve, the greater the firm"s level of investment, the lower the average ROE. Thus, the more money CMC retains and invests, the lower its average ROE will be. We can determine the average ROE under different conditions as follows:

Old situation (with founder active and 20 percent payout):

g = (1.0 – Payout ratio)(Average ROE)
12% = (1.0 – 0.2)(Average ROE)
Average ROE = 12%/0.8 = 15% > k_s = 14%

Note that the *average* ROE is 15 percent, whereas the *marginal* ROE is presumably equal to 14 percent.

New situation (with founder retired and a 60 percent payout)

g = 6% = (1.0 – 0.6)(ROE)
ROE = 6%/0.4 = 15% > k_s = 14%.

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This suggests that the new payout is appropriate and that the firm is taking on investments down to the point at which marginal returns are equal to the cost of capital.

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MOCK 3

SUGGESTED SOLUTIONS

QUESTION ONE

(a) Estimates of earnings and dividends per share, and their growth rates are shown below:

	Post-tax earnings per share (Sh.)	Growth (%)	Dividend per share (Sh.)	Growth (%)	Inflation (%)
1997	0.479	-	0.192	-	
1998	0.513	7.1	0.201	4.7	5
1999	0.552	7.6	0.209	4.0	4
2000	0.559	1.3	0.215	2.9	3
2001	0.619	10.7	0.222	3.3	3
Overall compound growth		6.6	3.7		

From the above data TYR appears to be following a policy of paying a constant dividend per share, adjusted for the current year"s level of inflation.

The only possible indication from the data of whether or not the dividend policy has been successful is the relative performance of TYR"s share price in comparison to the market index. This, however, would rely upon the assumption that the choice of dividend policy influences the share price.

	NSE index	Growth (%)	Share price (Sh.)	Growth (%)
1997	2895	-	36.00	-
1998	3300	14.0	41.00	13.9
1999	2845	(13.8)	34.50	(15.9)
2000	2610	(8.3)	45.90	33.0
2001	2305	(11.7)	44.80	(2.4)
Overall compound growth		(5.5)		5.6

TYR"s share price has increased over the four-year period by an annual compound rate of 5.6%, much betterthan the annual fall of 5.5% suffered by the all-share index. This does not prove that the dividend policy has been successful. The share price might be influenced by many other factors, especially the potential long-term cash flow expectations of the shareholders. Additionally comparison with the all-share index does not measure the performance of TYR relative to companies in its own industry sector.

(b) Additional information might include:

Direct feedback from shareholders, especially institutional shareholders, stating whether or not they are happy with the current dividend policy.

Full details of the registered shareholders, and size of holdings. TYR plc might have a desired spread of shareholders, which could be influenced by the dividend policy adopted.

Knowledge of the impact of taxation of dividends on shareholders" attitudes, and specifically on theirpreferences between dividends and capital gains.

The amount of capital investment the company wishes to undertake. The use of retained earnings and other internally generated funds avoids issue costs and the information asymmetry problems of

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external financing. The level of dividends paid affects the amount of internal funds that are available for investment.

The impact of dividends on corporate liquidity.

The signals provided by dividend payments about the future financial health of the company. For example, would the fact the dividend growth is lagging behind earnings growth be considered a positive or negative signal?

(c) Using the Dividend Growth Model market price = $\frac{D_1}{k\,e - g}$

where D_1 is the expected net dividend, ke is the cost of capital and g the growth rate in dividends. Using the average compound growth of 3.7%:

$$\frac{D_1}{k\,e - g} = \frac{22.2(1.037)}{0.11 - 0.037} = 315 \text{ pence}$$

The actual share price at the end of 2001 appears to be overvalued relative to the dividend growth model.

This does not prove that the actual market price was overvalued. The dividend growth model relies upon restrictive assumptions, such as constant growth in dividends per share, which is unlikely to occur. There are also several factors that influence share prices that are not included within the model. Growth in earnings per share has increased more than growth in dividend per share, and it might be better to use the earnings growth rate in the model as this might more accurately reflect the financial health of the company.

QUESTION TWO

(a) CAPM may be used to estimate whether or not the projects are expected to yield a high enough return relative to their systematic risk.

$$\text{Beta} = \frac{\text{Correlation coefficient x project standard deviation}}{\text{Market standard deviation}}$$

Project	1	2	3
	0.76 x 8.4	0.63 x 4.6	0.68 x 14.3
	6.9	6.9	6.9
Beta	0.93	0.42	1.20

Using CAPM, required return = Rf + (Rm – Rf) beta

Project	1	2	3
Required return (%)	14.37	9.78	16.8
Expected return (%)	15	11	17
Abnormal return (%)	0.63	1.22	0.20

All three projects are expected to generate satisfactory returns relative to their systematic risk. Other things being equal, the project with the highest expected NPV should be selected. However, NPVs cannot be estimated from this data. It is recommended that investment 2 is selected as it is the largest investment in terms of initial outlay, and also has the largest expected abnormal return.

The investment of any surplus funds in the money market is irrelevant as such investment has an expected NPV of zero (assuming the money market is efficient).

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(b) The current gearing using market values is:

Equity, 20 million shares x Sh.22 = Sh.440 million.

The market price of debt is $Sh.71mX \frac{£105.50}{£100}$ = Sh.74.91 million

The cost of equity is estimated to be: 6% + (15% - 6%) 1.25 = 17.25%

The cost of debt may be estimated from the redemption yield of existing long-term debt.

$$\text{Sh.105.5m} = \frac{12(1-.3)}{1+kd} + \frac{12(1-.3)}{(1+kd)^2} + \frac{12(1-.3)}{(1+kd)^3} + \frac{12(1-.3)}{(1+kd)^4} + \frac{100}{(1+kd)^4}$$

By trial and error

At 8%

8.4 x 3.465	=	27.82
100 x 0.735	=	73.50
		101.32

At 6%

8.4 x 3.465	=	28.11
100 x 0.792	=	79.20
		108.31

Interpolating

$$6\% + \frac{2.81}{2.81+4.18} \times 2\% = 6.8\%$$

The cost of debt is approximately 6.8%.

$$\text{WACC} = ke \times \frac{E}{E+D} + kd(1-t) \times \frac{D}{E+D}$$

$$= 17.25\% \times \frac{440}{440+74.91} + 6.8\% \times \frac{74.91}{440+74.91} = 615.73\%$$

Jetter"s cost of capital is 15.73%.

The new investment is not likely to alter the gearing of the company significantly, as the investment is financed by internal funds, which, in theory, does not alter gearing but only changes the nature of the company"s assets. The Sh.12m NPV is likely to accrue primarily to the shareholders and mightreduce gearing slightly as the value of equity increases.

The risk of the new project appears to be very low (asset beta of 0.33; given he company"s gearing, the equity beta would only be a little higher than this), which will reduce the overall equity beta of the company, and the cost of equity. The overall effect is likely to be a small decrease in the weighted average cost of capital.

(c) Betas estimated from standard regression techniques may not provide the best estimate of a company"s true beta. High betas are argued to be overestimated, and low betas to be underestimated. Additionally estimation errors are likely to be greater in small companies than in large companies.

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Adjusted betas have been suggested to try to reduce estimation errors and produce a more accurate beta. The suggested adjustment lowers betas of more than 1 and increases betas of less than 1.

QUESTION THREE

(a) Assuming the risk of companies in the printing industry is similar to that of Strayer"s new investment, the beta of the printing industry will be used to estimate the discount rate for the base case NPV. Ungearing the beta of the printing industry:

$$\text{Asset beta} = \text{equity beta} \times \frac{E}{E + D(1-t)} = 1.2 \times \frac{50}{50 + 50(1-0.30)} = 0.706$$

Using the capital asset pricing model:

Ke ungeared = 5.5% + (12% - 5.5%)0.706 = 10.09% or approximately 10%.

Annual after tax cash flows = Sh.5 million (1 – 0.3) = Sh.3,500,000

From annuity tables with a 10% discount rate:

	Sh.
Present value of annual cash flows 3,500,000 x 6.145 =	21,507,500
Present value of the residual value 5,000,000 x 0.386 =	1,930,000
	23,437,500
Less initial investment	25,000,000
Base case NPV	(1,562,500)

Financing side effects relate to the tax shield on interest payments, the subsidized loan, and issue costs associated with external financing.

Tax relief:

Sh.5 million 8% loan. Interest payable is Sh.400,000 per year, tax relief is Sh.400,000 x 0.3 = Sh.120,000 per year

Sh.4 million subsidized loan. Interest is Sh.240,000 per year, tax relief Sh.72,000 per year.

Total annual tax relief Sh.192,000 per year.

The present value of this tax relief, discounted at the risk free rate of 5.5% per year is: Sh.192,000 x 7.541 = Sh.1,447,872

(The tax relief on interest payments allowed by government is assumed to be risk free. The mid-point between 5% and 6% in annuity tables is used. N.B. discounting at a rate higher than the risk free rate could be argued, especially if the company might be in a non taxpaying position in some years.)

Subsidy:

The company saves 2% per year on Sh.4,000,000 or Sh.80,000, or Sh.80,000 x (1 – 0.30) = Sh.56,000 after tax.

As this is a government subsidy it is assumed to be risk free and will be discounted at 5.5% per year. Sh.56,000 x 7.541 = Sh.422,296

Issue costs:		Sh.
Debt Sh.5 million x 1%	=	50,000
Equity Sh.10 million x 4%	=	400,000
		450,000

The adjusted present value is estimated to be:

(Sh.1,562,500) + Sh.1,447,872 + Sh.422,296 – Sh.450,000 = (Sh.142,332)

Based upon these estimates the project is not financially viable.

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(b) APV may be a better technique to use than NPV when:

- There is a significant change in capital structure as a result of the investment.
- The investment involves complex tax payments and tax allowances, and/or has periods when taxation is not paid.
- Subsidized loans, grants or issue costs exist.
- Financing side effects exist (e.g. the subsidized loan) which require discounting at a different rate than that applied to the mainstream project.

QUESTION FOUR

(a) Delta measures the change in the option price (premium) as the value of the underlying share moves by 1%.

$$\text{Delta} = \frac{\text{Change in the price of the option}}{\text{Change in the price of the underlying share}}$$

It is measured by $N(d_1)$ in the Black-Scholes option pricing model.

As the share price falls delta falls towards zero. Delta may be used to construct a risk free hedge position, whereby overall wealth will not change with small changes in share price.

Theta measures the change in the option price as the time to expiry increases. The longer the time to expiry of an option, the greater its value. Theta may be used to estimate by how much the value of an option will fall as time to maturity reduces.

Vega measures the change in option price as a result of a 1% change in the share price volatility or variance. As volatility increases, the value of both call and put options increases.

All three are of use to treasury managers when hedging their investments. As their values approach zero the hedged position will become unaffected by changes in these variables.

(b) (i)$N(d_1)$ is required in order to determine the delta hedge.

$$d_1 = \frac{\text{In}(20/22) + .06(.25)}{0.5(.25)^{.5}} + 0.5(0.5)(.25)^{.5}$$

$= -0.19624$

From normal distribution tables:

$N(d_1) = 0.5 - 0.0778 = 0.4222$

Delta = 0.4222

In order to protect against a fall in Uniglow"s share price, the easiest hedge would be to write (sell) options on Uniglow"s shares. A delta of 0.4222 means that the relevant hedge

Ratio is $\frac{1}{0.4222} = 2.368$

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To hedge 100,000 shares:

$$\frac{100{,}000 \times 2.368}{1{,}000} = 237$$ options on Uniglow"s shares need to be written.

(ii) A hedge such as this is only valid for a small change in the underlying share price. As the share price alters the option delta will alter and the hedge will need to be periodically rebalanced.

QUESTION FIVE

Briefing Memo: Mergers and acquisitions

(a) The motive for many mergers and acquisitions is to create incremental value through the existence of synergy when two entities are combined. Synergy means that the value of the new whole is greater than the sum of the previous values of the component parts. Synergy may exist for several reasons:

Operating synergy:

Operating synergies arise from improved productivity, or from cost cutting as a result of the merger. Economies of scale or scope might exist in the larger merged entity. Such economies may relate to production, marketing or finance, the latter including access to capital markets on improved terms. There might also be increased market power, allowing some advantage to be taken of an oligopolistic position.

If the victim company was relatively badly managed it might be possible to eliminate inefficiencies that previously existed. Alternatively better use may be made of talented managers who were not previously utilised to their full potential.

Where a victim company is „cash rich" more efficient use might be made of such cash.

Gains may occur from horizontal mergers where competitors are purchased. Gains occur through rationalization of research and development, sales and distribution, duplicated facilities and sales outlets, computer facilities etc. Vertical mergers between customers and suppliers can create value by eliminating various co-ordination, security of supply and bargaining problems.

Synergy may exist though the greater ability to transfer from one division to another.

Financial synergy:

Financial synergy may exist after a merger as the new entity may be more diversified. Diversification reduces the risk of cash flows, making the company more attractive to investors and reducing the company"s cost of capital.

There may also be tax synergies, whereby the combined entity is able to fully utilize tax allowances or tax losses that could not previously be utilised.

(b) Evidence suggests that many mergers and acquisitions do not achieve the forecast synergies, and that shareholders in the target firm reap most benefits from any additional value created. Reasons for not achieving expected synergy include:

- The acquisition decision is based upon incomplete or incorrect information
- Synergies are difficult to value
- Unexpected costs and problems exist when combining two organizations with different organizational structures, cultures and managerial styles.
- Managers are not given suitable incentives to achieve maximum synergies.

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(c) Mergers purely for diversification may be beneficial as they may reduce the cost of capital explained above. Other possible benefits from diversification are:

- The flexibility of the company may be enhanced
- Debt capacity is normally increased
- The risk of corporate failure is often reduced
- Competitors may find it more difficult to access relevant information about a diversified company, as it is not immediately clear how individual sections of the company are performing, and what is their strategy.

However, it is usually considered that investors can diversify far more efficiently through their portfolios than can company managers.

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MOCK 4

SUGGESTED SOLUTIONS

QUESTION ONE

(a) The consultant"s report should not be used as the only basis for the African investment decision,because:

The decision should be taken after evaluating the risk/return trade-off; financial factors (e.g. the expected NPV from the investments); strategic factors; and other issues including political risk. Political risk is only one part of the decision process (although in extremely risky countries it might be the most important one).

The scores for the three countries are:

Country 1	29
Country 2	24
Country 3	28

Just because previous clients have not invested in countries with scores of less than 30 does not mean that Beela should not. The previous countries may not have been comparable with these in Africa. This decision rule also ignores return. If return is expected to be very high, a relatively low score might be acceptable to Beela.

The factors considered by the consultant might not be the only relevant factors when assessing political risk. Others could include the extent of capital flight from the country, the legal infrastructure, availability of local finance and the existence of special taxes and regulations for multinational companies.

The weightings of the factors might not be relevant to Beela.

Scores such as these only focus on the macro risk of the country. The micro risk, the risk for the actual company investing in a country, is the vial factor. This differs between companies and between industries. A relatively hi-tech electronics company might be less susceptible to political actions than, for example, companies in extractive industries where the diminishing bargain concept may apply.

There is no evidence of how the scores have been devised and how valid they are.

(b) Prior to investing Beela might negotiate an agreement with the local government covering areas of possible contention such as dividend remittance, transfer pricing, taxation, the use of local labour and capital, and exchange control. The problem with such negotiations is that governments might change, and a new government might not honour the agreement.

The logistics of the investment may also influence political risk:

If a key element of the process is left outside the country it may be viable for the government to take actions against accompany as it could not produce a complete product. This particularly applies when intellectual property or know-how is kept back.

Financing locally might deter political action, as effectively the action will hurt the local providers of finance.

Local sourcing of components and raw materials might reduce risk.

It is sometimes argued that participating in joint ventures with a local partner reduces political risk, although evidence of this is not conclusive.

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Control of patents and processes by the multinational might reduce risk, although patents are not recognized in all countries.

Governments or commercial agencies in multinations" home countries often offer insurance against political risk.

QUESTION TWO

Share repurchases are a way for companies to distribute earnings to shareholders other than by a cash dividend. They are also a means of altering a target capital structure; supporting the share price during periods of weakness; and deterring unwelcome take-over bids. Companies typically repurchase shares either by making a tender offer for a block of shares, or by buying the shares in the open market. In the absence of taxation and transactions costs share repurchase and the payment of dividends should have the same effect on share value. However, the different treatment of taxation on dividends and capital gains in many countries may lead to a preference for share repurchases by investors.

If the repurchase of shares is by means of a tender offer, this will often be at a price in excess of the current market value, and may have a different effect on overall company value.

An important question for share value is what information a share repurchase conveys to the market about the company and its futures prospects.

Managers should take decisions that maximize the intrinsic value of the firm. This, in theory, involves undertaking the optimum amount of positive NPV investments. The use of share repurchases, and the payment of dividends, will therefore be influenced by the amount of investment that the company undertakes. When a company does not have sufficient investments to fully utilize available cash flow, the payment of dividends or share repurchases are more likely.

Analysts are believed to normally consider an increase in dividends or share repurchases as good news, as they suggest that the company has more cash, and possibly greater potential, than previously believed. However, if this subsequently proves not to be so, share prices will adjust downwards.

Share repurchases in themselves do not create value for the company, but the market may see the information or signals that they provide as significant new information that will affect the share price.

Share splits are the issue of additional shares at no cost to existing shareholders in proportion to their current holdings, but with lower par value. Share splits have no effect on corporate cash flows and, in theory, should not affect the value of the company. The share price, in theory, should reduce proportionately to the number of new shares that are issued.

Motivates for share splits include:

A company wishes to keep its share price within a given trading range, e.g. below £10 per share. It is sometimes argued that investors might be deterred by a high share price, and that lower share prices would ensure a broader spread of share ownership. Shareholders could actually lose from lower prices, as the bid-offer spread (the difference between buying and selling prices) is often higher as a percentage of share for lower priced shares.

Companies hope that the market will regard a share split as good news, and that the share price will increase (relative to the expected price) as a result of the announcement. Evidence suggests that even if such reaction occurs it is short-lived unless the company improves cash flows, increases dividends etc. in subsequent periods.

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QUESTION THREE

(a) Portfolio return is the weighted average of the returns of the five investments. As the investments are of equal value the return is $\frac{73}{5}$=14.6%

Portfolio diversification offers no enhancements to return, although it does offer the opportunity for improved combinations of risk and return.

As there is believed to be no correlation between any of the investments, portfolio risk may be estimated by:

$[(0.2)^2 8^2 + (0.2)^2 10^2 + (0.2)^2 7^2 + (0.2)^2 4^2 + (0.2)^2 16^2]^{0.5} = (19.4)^{0.5} =$

4.4% (The remaining terms in the portfolio risk equation are all zero)

With a portfolio of only five investments, the benefits of diversification have reduced portfolio risk, measured by the standard deviation of expected returns, to approximately that of the lowest risk individual investment. This portfolio risk reduction is quite large because of the lack of correlation between the investments. The further away the correlation coefficient is from +1, the greater the risk reduction through diversification.

(b) In theory, a well diversified investor will not place any extra value on companies that diversify. On the contrary, as diversification is expensive, and might move companies away from their core competence, a diversified company might have a relatively low market value.

However, not all investors are well diversified, and even well diversified investors might benefit from a diversified company. A diversified company might have a less volatile cash flow pattern, be less likely to default on interest payments, have a higher credit rating and therefore lower cost of capital, leading to higher potential NPVs from investments and a higher market value.

If the diversification is international the benefits of diversification will depend upon whether the countries where the investments take place are part of any integrated international market, or are largely segmented by government restrictions (e.g exchange controls, tariffs, quotas).

If markets are segmented international diversification might offer the opportunity to reduce both systematic and unsystematic risk. An integrated market would only offer the opportunity to reduce unsystematic risk. Most markets are neither fully integrated nor segmented meaning that international diversification will lead to some reduction in systematic risk, which would be valued by investors. It is to be hoped that risk reduction is not the only objective of Maltec; returns and shareholder utility are also important.

QUESTION FOUR

This is a very wide question and a variety of answers would be acceptable. The following government actions could be included in the answer:

(1) Taxation, both corporate and personal.

- Monetary policy, especially credit controls
- Wage controls.
- Dividend controls.
- Profit controls, including price controls.
- Customs duties, tarrifs and other trade barriers.
- Investment incentives, including grants and accelerated allowances.

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- Schemes for personal savings, including National Savings.
- Government borrowing requirements from the capital market – this may restrict the funds available to other borrowers.
- Direct provision of finance to the nationalized sector and other companies considered of national importance (eg, for the creation or maintenance of employment).
- Regional policies, enterprise zones.
- Use of foreign exchange reserves to influence the value of the pound.
- Provision of information through many government departments and statistical services.
- Health and Safety Acts, environmental controls.
- Monopolies legislation.
- Almost all of the above government activities will directly affect companies and their ability to achieve their chosen financial objectives.
- For example, if maximization of shareholder wealth is desired:
- Taxation affects corporate income, personal disposable income, savings and investment levels, levels of demand, dividend levels and share prices.
- Credit controls affect the cost and availability of funds, the value of shares, profit and dividend levels.
- Exchange rate policies can influence the success of export/import-based firms.
- Many other illustrations are possible.

QUESTION FIVE

Financial management is concerned with making decisions about the provisions and use of a firm"s finances. A rational approach to decision-making necessitates a fairly clear idea of what the objectives of the decision maker are or, more importantly, of what are the objectives of those on behalf of whom the decisions are being made.

There is little agreement in the literature as to what objectives of firms are or even what they ought to be. However, most financial management textbooks make the assumption that the objective of a limited company is to maximize the wealth of its shareholders. This assumption is normally justified in terms of classical economic theory. In a market economy firms that achieve the highest returns for their investors will be the firms that are providing customers with what they require. In turn these companies, because they provide high returns to investors, will also find it easiest to raise new finance. Hence the so called „invisible hand" theory will ensure optimal resource allocation and this should automatically maximize the overalleconomic welfare of the nation.

This argument can be criticized on several grounds. Firstly it ignores market imperfections. For example it might not be in the public interest to allow monopolies to maximize profits. Secondly it ignores social needs like health, police, defence etc.

From a more practical point of view directors have a legal duty to run the company on behalf of their shareholders. This however begs the question as to what do shareholders actually require from firms.

Another justification from the individual firm"s point of view is to argue that it is in competition with other firms for further capital and it therefore needs to provide returns at least as good as the competition. If it does not it will lose the support of existing shareholders and will find it difficult to raise funds in the future, as well as being vulnerable to potential take-over bids.

Against the traditional and „legal" view that the firm is run in order to maximize the wealth of ordinaryshareholders, there is an alternative view that the firm is a coalition of different groups: equity shareholders, preference shareholders and lenders, employees, customers and suppliers. Each of these groups must be paid a minimum „return" to encourage them to participate in the firm. Any excess wealth created by the firm should be and is the subject of bargaining between these groups.

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At first sight this seems an easy way out of the „objectives" problem. The directors of a company could say „Let"s just make the profits first, then we"ll argue about who gets them at a later stage". In other words, maximizing profits leads to the largest pool of benefits to be distributed among the participants in the bargaining process. However, it does imply that all such participants must value profits in the same way and that they are all willing to take the same risks.

In fact the real risk position and the attitude to risk of ordinary shareholders, loan creditors and employees are likely to be very different. For instance, a shareholder who has a diversified portfolio is likely not to be so worried by the bankruptcy of one of his companies as will an employee of that company, or a supplier whose main customer is that company. The problem of risk is one major reason why there cannot be a single simple objective which is common to all companies.

Separate from the problem of which goal a company ought to pursue are the questions of which goals companies claim to pursue and which goals they actually pursue.

Many objectives are quoted by large companies. Sometimes these are included in their annual accounts. Examples are:

- To produce an adequate return for shareholders;
- To grow and survive autonomously;
- To improve productivity;
- To give the highest quality service to customers;
- To maintain a contented workforce;
- To be technical leaders in their field;
- To be market leaders;
- To acknowledge their social responsibilities.

Some of these stated objectives are probably a form of public relations exercise. At any rate, it is possible to classify most of them into four categories which are related to profitability:

Pure profitability goals eg, adequate return for shareholders.

(ii) „Surrogate" goals of profitability eg, improving productivity, happy workforce.Constraints on profitability eg, acknowledging social responsibilities, no pollution, etc.
„Dysfunctional" goals.

The last category are goals which should not be followed because they do not benefit in the long run. Examples here include the pursuit of market leadership at any cost, even profitability. This may arise because management assumes that high sales equal high profits which is not necessarily so.

In practice the goals which a company actually pursues are affected to a large extent by the management. As a last resort, the directors may always be removed by the shareholders or the shareholders could vote for a take-over bid, but in large companies individual shareholders lack voting power and information. These companies can, therefore, be dominated by the management.

There are two levels of argument here. Firstly, if the management do attempt to maximize profits, then they are in a much more powerful position to decide how the profits are „carved up" than are the shareholders.

Secondly, the management may actually be seeking „prestige" goals rather than profit maximization. Such goals might include growth for its own sake, including empire building or maximizing turnover for its sake, or becoming leaders in the technical field for no reason other than general prestige. Such goals are usually „dysfunctional".

The dominance of management depends on individual shareholders having no real voting power, and in this respect institutions have usually preferred to sell their shares rather than interfere with the management of

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companies. There is some evidence, however, that they are now taking a more active role in major company decisions.

From all that has been said above, it appears that each company should have its own unique decision model. For example, it is possible to construct models where the objective is to maximize profit subject to first fulfilling the target levels of other goals. However, it is not possible to develop the general theory of financial management very far without making an initial simplifying assumptions about objectives. The objective of maximizing the wealth of equity shareholders seems the least objectionable.

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MOCK 5

SUGGESTED SOLUTIONS

QUESTION ONE

The management of risk associated with foreign trade will depend upon the nature of the risk. The risks include:

(a) Commercial risk is that the client will only pay after the due date. It may be managed by:

(i) Credit screening prior to the contract being signed. This might include formal credit evaluation through a credit agency, use of information from trade associations, government databases, bank references or trade references.

(ii) The terms of sale. Some terms of sale involve much less risk than others. Most secure (but not common) is cash in advance. Others, in order of increasing risk include cash on delivery, documentary letters of credit, bills of exchange and open account.

(iii) The method of payment. The quicker and more secure the method of payment, the lower the risk. Extremes range from secure electronic funds transfer to sending a cheque in the post.

(iv) Insurance against non-payment or late payment. In many countries this is offered through government agencies. In the UK short-term insurance providers include NCM and Trade Indemnity.

(b) Physical risk, the risk of damage or theft in transit is best managed through insurance cover.

(c) Political risk is risk of non-payment or late payment as a result of the actions of a foreign government, e.g. through the introduction of exchange controls, tariffs or quotas. Political risk protection is often offered by the same insurers as commercial risk. Political risk might also be avoided by using different forms of international activity, e.g. tariffs and quotas might be avoided by direct investment in the country concerned, exchange controls might be avoided by engaging in counter trade rather than cash trade.

(d) Cultural risk is risk associated with different cultures, ways of doing business, attitude to religion, colours, gender, food and drink etc. In order to reduce such risk thorough research of the local market, culture, and business practices should be undertaken prior to trading.

QUESTION TWO

(a) Financial evaluation of the alternative power stations Gas fuelled power station

	Cash flows at current prices (Sh.million)	
Year	**4 – 13 (annual)**	**14 – 28 (annual)**
Revenue	800	800
Labour	75	75
Fuel purchases	500	500
Sales and marketing	40	40
Customer relations	5	5
Other	5	5
Tax allowable depreciation	60	-
	685	625

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Taxable	115	175
Taxation (30%)	34.5	52.5
	80.5	122.5
Add back depreciation	60	-
	140.5	122.5

Present values at 6% 140.5 x 7.360 x 0.84 (end of yr 3) = 868.6

122.5 x 9.712 x 0.469 (end of yr 13) = 558.0

Other cash flows (Sh. million)

Year	1	2	3	4	28
Redundancy				4	
Capital outlays	300	300			
Decommissioning costs			10		25
	300	300	10	4	25
Discount rate (6%)	0.943	0.890	0.840	0.792	0.196(0.417 x 0.469)
Present values	282.9	267.0	8.40	3.17	4.9

Expected net present value 868.6 + 558.0 – (282.9 + 267.0 + 8.40 + 3.17 + 4.9) = Sh.860.23 million.

Notes:

(i) The interest cost is included in the discount rate
(ii) Decommissioning is assumed to have the same risk as the rest of the project
(iii) Discount rates

Gas Cost of equity using CAPM is 4.5% + (14% - 4.5%)0.7 = 11.15%
WACC = 11.15% x 0.65 + 8.5%(1 – 0.3) x 0.35 = 9.33%

However, this is the nominal cost of capital which includes inflation. The cash flow projections exclude inflation and must be discounted at a real cost of capital.

$$\frac{1.0933}{1.03} = 1.061 - 1 = 0.061 = 6\%$$

6% will be used as the real discount rate.

Nuclear Cost of equity using CAPM is 4.5% + (14% - 4.5%)1.4 = 17.8%
WACC = 17.8 x 0.40 + 10%(1 – 0.3) x 0.60 = 11.32%

The real cost of capital is: $\frac{1.1132}{1.03} = 1.081$

8% will be used as the real discount rate.

These estimates of the discount rates assume that the value of the pound will not change relative to the Euro, or alternatively that the UK will join the Euro UK bloc in the near future. If this does not occur, and inflation differentials between the UK and Euro bloc remain similar, the cost of debt should be slightly less as the Euro is expected to fall in value relative to the pound.

Nuclear fuelled power station

	Cash flows at current prices (Sh. million)	
Year	**4 – 13 (annual)**	**14 – 28 (annual)**
Revenue	800	800

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Labour	20	20
Fuel purchases	10	10
Sales and marketing	40	40
Customer relations	20	20
Other	25	25
Tax allowable depreciation	330	-
	445	115
Taxable	355	685
Taxation (30%)	106.5	205.5
	248.5	479.5
Add back depreciation	330	-
	578.5	479.5

Present values at 8% 578.5 x 671 x 0.794 = 3,082 479.5 x 8.559 x 0.368 = 1,510.3

Other cash flows (Sh. million)

Year	1	2	3	4	28
Redundancy				36	
Capital outlays	1,650	1,650			
Decommissioning costs			10		1,000
	1,650	1,650	10	36	1,000
Discount rate (6%)	0.926	0.857	0.794	0.735	0.116
Present values	1,527.9	1,414	7.94	26.5	116

Expected net present value 3,082 + 1,510.3 – (1,527.9 + 1,414 + 7.94 + 26.5 + 116)

= Sh.1,500 million.

Notes:

(i) If decommissioning costs Sh.500 million the expected NPV is Sh.1,558 million

(ii) For the purpose of selecting between alternatives the demolition costs in three year"s time could be ignored

On financial grounds the nuclear alternative is expected to produce the higher NPV.

(b) Information that might assist the decision process includes:

(i) How accurate are the projected cash flows? Are the various revenues and costs likely to be subject to the same price level changes?

(ii) Is the risk of the project correctly measured by the beta estimates?

(iii) What is the chance of significant changes in tax rates allowable depreciation?

(iv) Are there likely to be delays in construction?

How accurate is the estimate of the working life of the power stations? What happens if technology changes?

Is the technology well tested, especially for the nuclear alternative.

Sensitivity and/or simulation analysis to investigate outcomes under different assumptions is strongly recommended.

(vii) What will be the impact of the alternative levels of gearing on other activities of the company and on the company"s share price?

(viii) What real options might exist with the alternative projects?

(ix) How significant are non-financial factors? In the light of nuclear accidents in Russia and Japan how safe is the nuclear alternative? How environmentally or politically acceptable

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would this alternative be? Even if the nuclear alternative is the better choice financially, this might be outweighed by non-financial considerations.

QUESTION THREE

(a) If it is agreed to maximize the value of the firm, it is necessary to ask two fundamental questions: who is the firm?

What do we mean by value?

In the United Kingdom the traditional view has been for the interests of a firm to equate with those of the current equity shareholders. But is it now recognized that this is much too narrow. The employees and lenders to a business certainly have a legitimate interest, probably also the government. Some companies would add a company"s suppliers and customers as part of the stakeholders. Perhaps the general public also belongs to the list.

Each of the members of the above list has different key objectives. For example employees might want their labour remuneration to be larger, while the shareholders want labour costs to be low so that higher profits can lead to higher dividends. Shareholders might be uninterested whether the company invests in „unethical"areas of business such as armaments or cigarettes, as long as their investment is profitable, while certain sections of the public will discourage unethical products.

The value of an investment in terms of financial management theory is the present value of the cash returns available from the investment. However this varies from investor to investor depending on personal discount rate, tax position, period of investment, etc. For example the value of a share bought today and expected to be sold in five years time will be the present value of the five years dividends plus the present value of the expected net realizable value at the end of the holding period. So the value of the same share will be different to different shareholders, and the job of the managers to maximize the total value becomes impossible.

A further problem arises in the conflict between short-term results and long-term viability. Managers might be on annual service contracts and therefore are motivated to report the highest possible short-term profits. This might involve cutting down on revenue investment such as maintaining fixed assets, advertising, research costs, etc. Such a policy is in the best interests of management, since they will be paid a bonus for reporting good results, but is not in the long-term interests of the company.

Financial managers often deal with the above conflicts by adopting a satisfying approach rather than an optimizing approach. The hope to please everyone by following moderate policies which are not exclusively in the interests of one of the sectional stakeholders of the business.

(b) Arguments for the introduction of statutory controls on corporate governance include the following:

(1) there already exist a raft of statutory controls on corporate governance, mainly in the Companies Act. For example companies must appoint auditors, directors can be removed according to standard procedures, and directors may not generally receive loans from their companies. What we are arguing here is whether the present statutory controls should be extended. It is fair to say that the existing controls have rather developed on a piecemeal basis, prohibiting specific acts when they have been observed in practice; thus the statute has lagged behind the reality. It would be more satisfactory if statutory controls could be developed at the same pace as developments in practice, though this ideal situation is impractical.

(2) the board of directors is supposed to act in the best interests of shareholders. However there may be situations where the interests of shareholders diverge from the managers" own interests; this conflict can be so strong that statutory controls are required to ensure that companies are run in the best interests of the shareholders. An example is directors" remuneration and service contracts. Directors

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might want large remuneration and contracts offering large compensation if they are sacked. The Companies Act requires total remuneration paid to directors to be disclosed.

(3) a further conflict arises where auditors are appointed by the directors, and the directors fix their remuneration, yet they report to the shareholders. There is a temptation for auditors to which to please the directors who have appointed them, rather than to act objectively in the shareholders" best interests. The independence of mind of auditors is guaranteed by their professionalism required by the Companies Act.

(4) the best way of ensuring good governance is likely to be the threat of further statutory controls. When directors see that a government is sincere in wishing to encourage good governance, the worst practices will be stopped for fear of attracting new legislation.

Arguments against the introduction of new statutory controls on corporate governance include the following:

(1) one cannot legislate against evil. If a bad man is determined to carry out a fraud, whether or not controls are enshrined in statute will be irrelevant.

(2) statutory controls may stifle individual entrepreneurship. Many companies have flourished in recent years because of the existence of one strong individual business person combining the roles of chairman and chief executive and pushing through their will, eg. Hanson in the UK. If the Cadbury recommendation to split the role of chairman and chief executive wherever possible had been enshrined in statute, such companies may not have enjoyed the success that they did.

(3) putting rules into statute encourages companies to obey the letter of the law rather than the spirit. The whole experience of the Securities and Investments Board in implementing the Financial Services Act regulations has proved that detailed rule books are an ineffective means of regulation. Statute should contain broad rules, backed up by self-regulatory practice notes and points of interpretation. It is this latter approach that has been adopted by the Accounting Standards Board in drawing up its new accounting standards, an approach that has proved successful to date. The Cadbury recommendations should follow this same successful course of action.

QUESTION FOUR

(a) There is considerable debate as to whether dividend policy can influence corporate value. Much of the debate concerns the question of whether it is the dividend that affects share value, or the information implied by the payment of the dividend. Dividends may provide, in the cheapest and most efficient manner, unambiguous signals about a company"s future prospects and management performance. Managers have an incentive to send truthful signals via dividends, as any changes in dividends that are not likely to be accompanied by changes in cash flows will not fool a market that is at least semi-strong form efficient. Dividends therefore may be a valuable communication medium.

There are a number of possible practical influences on dividend policy including:

(i) Dividends are to be discouraged as they may lead to issue costs associated with raising additional external finance.

(ii) Corporate growth. The faster a company is growing the lower the dividend payment is likely to be.

(iii) Liquidity. Cash is needed to pay dividends. The level of corporate liquidity might influence dividend payouts.

(iv) The volatility of corporate cash flows. Companies may be reluctant to increase dividends unless they believe that future cash flows will be large enough to sustain the increased dividend payment.

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(v) Legal restrictions, for example, government constraints, limitations on payments from reserves, and covenants on debt that restrict dividends.

(vi) The rate of inflation. Many shareholders like dividends to increase by at least as much as inflation.

(vii) The desires and tax position of the shareholder clientele. However, most companies have a broad spread of shareholders with different needs and tax positions.

(b) The company"s dividend per share has increased, in real terms, by between 6.6% and 12.53% per year during the last five years. Although no comparative industry data is available this appears to be a good performance. The payout ratio has reduced from 38% in 1994 to 30.5% in 1998, which may be why the institutional shareholder has made the criticism. However, there is little point the company paying out large dividends if it has positive NPV investments which can be financed partially by dividend retention. Although there is by no means a perfect correlation between NPV and earnings per share, the fact that earning per share have consistently increased over the period suggests that the company"s investments are financially viable. The company has consistently had high net capitalexpenditure relative to earnings, and in such circumstances it is not unusual for dividend payments to be relatively low.

The company"s share price has not increased by as much as earnings per share, but withoutinformation on stock market trends and the relative risk of the company it is not clear whether or not the company"s share price is under performing. Unless the institutional shareholder could invest any dividends received to earn a higher yield (adjusted for any differences in risk) there is little evidence to support the validity of the criticism.

Statistical data:	**1994**	**1995**	**1996**	**1997**	**1998**
Earnings per share (Sh.)	25.6	32.5	39.2	42.4	50.8
Retained earnings (Sh.m)	80	129	172	198	328
Payout ratio (%)	38.1	33.8	32.5	33.0	30.5
Dividends (Sh.m)	49.5	66.0	82.9	97.3	144.1
Real growth in dividend per share (%)		8.48	12.53	6.60	7.49

Note:

EPS = After tax earnings ÷ Number of ordinary shares.

QUESTION FIVE

Although two of the world"s leading trading currencies, the US dollar and the Japanese yen are floatingagainst other currencies, floating exchange rates are used by a minority of countries. A wide variety of exchange rate mechanisms exist. These include:

(i) Fixed or pegged exchange rates where a country fixes its exchange rate against the currency of another single country. More than 50 countries fix their rates in this way, mostly against the US dollar. Fixed rates are not permanently fixed and periodic revaluations and devaluations occur when the economic fundamentals of the countries concerned strongly diverge (e.g inflation rates).

(ii) Fixed exchange rates against a basket of currencies, the basket often being devised to reflect the major trading links of the country concerned. Using a basket of currencies is aimed at fixing the exchange rate against a more stable currency base than would occur with a single currency fix.

(iii) Flexible exchange rates against a single currency within a limited range of flexibility.

(iv) A joint float of a group of currencies. Prior to monetary union the currencies within the exchange rate mechanism (ERM) of the European Union participated in a joint float against external

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currencies, whilst maintaining a flexible exchange rate within agreed ranges against other ERM members.

(v) Automatic exchange rate adjustments against a set of economic indicators.

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Part:IV Revision Question and Answers

REVISION QUESTIONS

REVISION PAPER 1

CPA PART III
FINANCIAL MANAGEMENT

Time Allowed: 3 hours

Answer FIVE questions. Marks allocated to each question are shown at the end of the question.

QUESTION ONE

The annual reports of commercial corporations increasingly contain details of share option schemes.

You are required:

(a) To discuss whether share option schemes for either directors or employees generally, can benefit the interest of the shareholders in the company; (6 marks)

(b) Contrast share option schemes with other schemes for relating managers" rewards to the financial performance of the company; (8 marks)

(c) Describe the treatment of share option schemes in calculations of earnings per share.(6 marks)

(Total: 20 marks)

QUESTION TWO

You are presented with the following different views of stock market behaviour.

(1) If a company publishes an earnings figure that is better than the market expects, the shares of that company will usually experience an abnormally high return both on the day of the earnings announcement and over the two or three days following the date of the announcement.

(2) The return on professionally managed portfolios of equities is likely to be no better than that which ` could be achieved by a naïve investor who holds the market portfolio.

(3) Share prices usually seem to rise sharply in the first few days of a new fiscal year. However, this can be explained by the fact that many investors sell loosing stocks just before the fiscal year end in order to establish a tax loss for Capital Gains Tax purposes. This causes abnormal downward pressure which is released when the new fiscal year begins.

You are required:

(a) to describe the three forms of the Efficient Market Hypothesis; (10 marks)

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(b) to discuss what each of the above three statements would tell you about the efficiency of the stock market. Where appropriate relate your comments to one or more forms of the Efficient Market Hypothesis. (10 marks)

(Total: 20 marks)

QUESTION THREE

Ceder Ltd has details of two machines which could fulfill the company"s future production plans. Only oneof these machines will be purchased.

The „standard" model costs Sh.50,000, and the „de-luxe" Sh.88,000, payable immediately. Both machines would require the input of Sh.10,000 working capital throughout their working lives, and both machines have no expected scrap value at the end of their expected working lives of four years for the standard machine and six years for the de-luxe machine.

The forecast pre-tax operating net cash flows associated with the two machines are:

	Years hence					
	1	**2**	**3**	**4**	**5**	**6**
	Sh.	**Sh.**	**Sh.**	**Sh.**	**Sh.**	**Sh.**
Standard	20,500	22,860	24,210	23,410		
Deluxe	32,030	26,110	25,380	25,940	38,560	35,100

The de-luxe machine has only recently been introduced to the market and has not been fully tested in operating conditions. Because of the higher risk involved, the appropriate discount rate for the de-luxe machine is believed to be 14% per year, 2% higher than the discount rate for the standard machine.

The company is proposing to finance the purchase of either machine with a term loan at a fixed interest rate of 11% per year.

Taxation at 35% is payable on operating cash flows one year in arrears, and capital allowances are available at 25% per year on a reducing balance basis.

You are required:

(a) to calculate for both the standard and the de-luxe machine:

(i) pay-back period;

(ii) net present value

Recommend, with reasons, which of the two machines Ceder Ltd should purchase.

(Relevant calculations must be shown) (14 marks)

(b) If Ceder Ltd were offered the opportunity to lease the standard model machine over a four year period at a rental of Sh.15,000 per year, not including maintenance costs, evaluate whether the company should lease or purchase the machine. (6 marks)

(Total: 20 marks)

QUESTION FOUR

A division of Bewcast plc has been allocated a fixed capital sum by the main board of directors for its capital investment during the next year. The division"s management has identified three capital investment projects, each potentially successful, each of similar size, but has only been allocated enough funds to undertake two projects. Projects are not divisible and cannot be postponed until a later date.

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The division"s management proposes to use portfolio theory to determine which two projects should be undertaken, based upon an analysis of the projects" risk and return. The success of the projects will depend upon the growth rate of the economy. Estimates of project returns at different levels of economic growth are shown below:

Economic growth (annual average)	Probability of occurrence	Estimated return (%) Project 1	Project 2	Project 3
Zero	0.2	2	5	6
2 per cent	0.3	8	9	10
4 per cent	0.3	16	12	11
6 per cent	0.2	25	15	11

You are required:

(a) to use the above information to evaluate and discuss which two projects the division is likely to undertake. All relevant calculations must be shown. (14 marks)

(b) What are the weaknesses of the evaluation technique used in (a) above, and what further information might be useful in the evaluation of these projects? (4 marks)

(c) Suggest why portfolio theory is not widely used in practice as a capital investment evaluation technique. (3 marks)

(d) Recommend, and briefly describe, an alternative investment evaluation technique that might be applied by the division. (4 marks)

(Total: 25 marks)

QUESTION FIVE

The managing director of Wemere, a medium -sized private company, wishes to improve the company"s investment decision-making process by using discounted cash flow techniques. He is disappointed to learn that estimates of a company"s cost of capital usually require information on share prices which, for a private company, are not available. His deputy suggests that the cost of equity can be estimated by using data for Folten Ltd., a similar sized company in the same industry whose shares are listed on the SE, and he has produced two suggested discount rates for use in Wemere"s future investment appraisal. Both of these estimates are in excess of 17% per year which the managing director believes to be very high, especially as the company has just agreed a fixed rate bank loan at 13% per year to finance a small expansion of existing operations. He has checked the calculations, which are numerically correct, but wonders if there are any errors of principle.

Estimate 1: capital asset pricing model

Data have been purchased from a leading business school:

Equity beta of Folten	1.4
Market return	18%
Treasury bill yield	12%

The cost of capital is 18% +(18% - 12%)1.4 = 26.4%.

This rate must be adjusted to include inflation at the current level of 6%. The recommended discount rate is 32.4%.

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Estimate 2: dividend valuation model

Folten plc

Year	Average share price (Sh.)	Dividend per share (Sh.)
19X5	19.30	0.923
19X6	10.90	1.006
19X7	9.60	1.097
19X8	11.60	1.195
19X9	13.00	1.303

The cost of capital is $\frac{D_1}{P-g} = \frac{14.20}{138-9} = 11.01\%$

Where D_1 = expected dividend
P = market price
g = growth rate of dividends (%)

When inflation is included the discount rate is 17.01%.

Other financial information on the two companies is presented below:

	Wemere Sh."000	Folten Sh."000
Fixed assets	7,200	7,600
Current assets	7,600	7,800
Less: Current liabilities	3,900	3,700
	10,900	11,700
Financed by:		
Ordinary shares (Sh.2.50)	2,000	1,800
Reserves	6,500	5,500
Term loans	2,400	4,400
	10,900	11,700

Notes:

(1) The current ex-div share price of Folten plc is Sh.13.80.

(2) Wemere"s board of directors has recently rejected a take-over bid of Sh.10.6 million.

(3) Corporate tax is at the rate of 35%.

You are required:

(a) to explain any errors of principle that have been made in two estimates of the cost of capital and produce revised estimates using both of the methods.

State clearly any assumptions that you make. **(14 marks)**

(b) to discuss which of your revised estimates Wemere should use as the discount rate for capital investment appraisal. **(4 marks)**

(Total: 18 marks)

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REVISION PAPER 2

QUESTION ONE

Karim plc and Roshan plc are quoted companies. The following figures are from their current balance sheets:

	Karim plc Sh."000	Roshan plc **Sh."000**
Ordinary share capital		
Authorised: 2,000,000 shares of 50p	1,000	1,000
Issued: 1,000,000 shares of 50p	500	500
Reserves	1,750	150
Shareholders" funds	2,250	650
6% Irredeemable debentures	-	2,500

Both companies earn an annual profit, before charging debenture interest of Sh.500,000 which is expected to remain constant for the indefinite future. The profits of both companies, before charging debenture interest, are generally regarded as being subject to identical levels of risk. It is the policy of both companies to distribute all available profits as dividends at the end of each year.

The current market value of Karim Ltd."s ordinary shares is Sh.3.00 per share cum div. An annual dividend is due to be paid in the very near future.

Roshan Ltd. has just made annual dividend and interest payments both on its ordinary shares and on its debentures. The current market value of the ordinary shares is Sh.1.40 per share and of the debentures, Sh.50.00 percent.

Mr. Hashim owns 50,000 ordinary shares in Roshan Ltd. He is wondering whether he could increase his annual income, without incurring any extra risk, by selling his shares in Roshan Ltd and buying some of the ordinary shares of Karim Ltd. Mr. Hashim is able to borrow money at an annual compound rate of interest of 12%.

You are required:

(a) to estimate the cost of ordinary share capital and the weighted average cost of capital of Karim Ltd and Roshan Ltd; (4 marks)

(b) to explain briefly why both the cost of ordinary share capital and weighted average cost of capital of Karim Ltd differ from those of Roshan Ltd; (3 marks)

(d) to prepare calculations to demonstrate to Mr. Hashim how he might improve his position in the way he has suggested, stating clearly any reservations you have about the scheme; and (10 marks)

(d) to discuss the implications of your answers to (a), (b) and (c) above for the determination of a company"s optimal financial structure in practice. (8 marks)

(Total: 25 marks)

QUESTION TWO

The board of directors of Rutherford plc is arguing about the company"s dividend policy. Director A is infavour of financing all investment by retained earnings and other internally generated funds. He argues that a high level of retentions will save issue costs, and that declaring dividends always results in a fall in share price when the shares are traded ex div.

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Director B believes that the dividend policy depends upon the type of shareholders that the company has, and that dividends should be paid according to shareholders" needs. She presents data relating to the company"s current shareholders.

Rutherford plc: analysis of shareholding

	Number of shareholders	Shares held (million)	% of total shares held
Pension funds	203	38.4	25.1
Insurance companies	41	7.8	5.1
Unit and investment trusts	53	18.6	12.1
Nominees	490	32.4	21.2
Individuals	44,620	55.9	36.5
	45,407	153.1	100.0

She argues that the company"s shareholder „clientele" must be identified, and dividends fixed according to their marginal tax brackets.

Director C agrees that shareholders are important, but points out that many institutional shareholders and private individuals rely on dividends to satisfy their current income requirements, and prefer a known dividend now to an uncertain capital gain in the future.

Director D considers the discussion to be a waste of time. He believes that one dividend policy is as good as other, and that dividend policy has no effect on the share price.

You are required to discuss critically the arguments for each of the four directors using both theinformation provided and any other evidence on the effect of dividend policy on share price that you consider to be relevant.

QUESTION THREE

Provincial plc is contemplating a bid for the share capital of National plc. The following statistics are available:

	Provincial plc	National plc
Number of shares	14 million	45 million
Share price	Sh.8.40	Sh.1.66
Latest equity earnings	Sh.11,850,000	Sh.9,337,500

Provincial plc"s plan is to reduce the scale of National plc"s operations by selling off a division which accounts for Sh.1,500,000 of National plc"s latest earnings, as indicated above. The estimated selling price for thedivision is Sh.10.2 million.

Earnings in National plc"s remaining operations could be increased by an estimated 20% on a permanent basis by the introduction of better management and financial controls. Provincial plc does not anticipate any alteration to National plc"s price/earnings multiple as a result of these improvements in earnings.

To avoid duplication, some of Provincial plc"s own property could be disposed of at an estimated price ofSh.16 million.

Rationalisation costs are estimated at Sh.4.5 million.

You are required:

(a) to calculate the effect on the current share price of each company, all other things being equal, of a two-for-nine share offer by Provincial plc, assuming that Provincial plc"s estimates are in line with those of the market; (10 marks)

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(b) to offer a rational explanation of why the market might react to the bid by valuing National plc"s shares at (i) a higher figure and (ii) a lower figure than that indicated by Provincial plc"s offer even though the offer is in line with market estimates of the potential merger synergy. (5 marks)

(c) Assume that Provincial plc is proposing to offer National plc shareholders the choice of the two-for-nine share exchange or a cash alternative.

You are required to advice Provincial plc whether the cash alternative should be more or less than the current value of the share exchange, giving your reasons. (5 marks)

(d) Assume now that Provincial plc, instead of making a two-for-nine share exchange offer, wishes to offer an exchange which would give National plc shareholders a 10% gain on the existing value of their shares.

You are required to calculate what share exchange would achieve this effect, assuming the same synergy forecasts as before. (5 marks)

(Total: 20 marks)

QUESTION FOUR

(a) Discuss briefly four techniques a company might use to hedge against the foreign exchange risk involved in foreign trade. (8 marks)

(b) Fidden is a medium-sized UK company with export and import trade with the USA. The following transactions are due with the next six months. Transactions are in the currency specified.

Purchases of components, cash payment due in three months: £116,000
Sales of finished goods, cash receipt due in three months: $197,000
Purchase of finished goods for resale, cash payment due in six months: $447,000
Sale of finished goods, cash receipt due in six months: $154,000

Exchange rates (London market)

	£
Spot	1.7106 – 1.7140
Three months forward	0.82 – 0.77 cents premium
Six months forward	1.39 – 1.34 cents premium

Interest rates

Three months or six months	**Borrowing**	**Lending**
Sterling	12.5%	9.5%
Dollars	9%	6%

Foreign currency option prices (New York market)
Prices are cents per £, contract size £12,500

	Calls			**Puts**		
Exercise price ($)	**March**	**June**	**September**	**March**	**June**	**September**
1.60	-	15.20	-	-	-	2.75
1.70	5.65	7.75	-	-	3.45	6.40
1.80	1.70	3.60	7.90	-	9.32	15.35

Assume that it is now December with three months to expiry of the March contract and that the option price is not payable until the end of the option period, or when the option is exercised.

You are required:

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(i) to calculate the net sterling receipts/payments that Fidden might expect for both its three and six month transactions if the company hedges foreign exchange risk on:

the forward foreign exchange market;

the money market. (7 marks)

(ii) If the actual spot rate in six months time was with hindsight exactly the present six months forward rate, calculate whether Fidden would have been better to hedge through foreign currency options rather than the forward market or money market. (7 marks)

(iii) to explain briefly what you consider to be the main advantage of foreign currency options. (3 marks)

(Total: 25 marks)

QUESTION FIVE

(a) A company operating in a country having the dollar as its unit of currency has today invoiced sales to the United Kingdom in sterling, payment being due three months from the date of invoice. The invoice amount is £3,000,000 which, at today"s spot rate of 1.5985 is equivalent to $4,795,500.

It is expected that the exchange rate will decline by about 5% over the three month period and in order to protect the dollar proceeds from the sale, the company proposes taking appropriate action through either the foreign exchange market or the money market.

The $/£ three-months forward exchange rate is quoted as 1.5858-1.5873. the three-months borrowing rate for Eurosterling is 15.0% and the deposit rate quoted by the company"s own bankers is currently 9.5%.

You are required to

Explain the alternative courses of action available to the company, with relevant calculations to four decimal places, and to advise which course of action should be adopted. (15 marks)

(b) You are required to discuss whether a multinational company should hedge translation exposure by incurring transaction exposure. (10 marks)

(c) Explain briefly what is meant by foreign currency options and give examples of the advantages and disadvantages of exchange traded foreign currency options to the financial manager. (5 marks)

(Total: 30 marks)

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REVISION PAPER 3

QUESTION ONE

You have been provided with the following information about a project, which XYZ Ltd. is planning to undertake soon.

Cost of equipment	Sh.760,000
Economic life	5 years
Installation costs	Sh.65,000
Depreciation	Straight-line basis
Working capital requirement	Sh.185,000
Projected revenue	Sh.520,000
Projected operating costs	Sh.115,000
Annual revenue growth rate	5%
Annual operating costs growth rate	7%
Marginal tax rate	40%
Risk free rate	10%
Cost of capital	12%
Equipment disposal value	Sh.120,000

Required:

(a) Calculate the project"s net investment. (2 marks)

(b) Using the net present value method, show whether or not the project should be undertaken by the company. (8 marks)

(c) Suppose in addition to the information given above you are provided with the following cash flows certainty equivalents:

Year 0: 1.00
Year 1: 0.90
Year 2: 0.80
Year 3: 0.60
Year 4: 0.50
Year 5: 0.40

Does your conclusion about the acceptability of the project in part (c) above change? Explain. (10 marks)

(Total: 20 marks)

QUESTION TWO

(a) The Capital Asset Pricing Model is a powerful technique in the estimation of risk of a particular security. It nevertheless is not applicable in the real world due to its many limiting assumptions.

Required:
Discuss the above statement. (10 marks)

(b) The following data have been provided with respect to three shares traded on the Nairobi Stock Exchange (NSE).

	Share A	**Share B**	**Share C**
Risk free rate of return	0.120	0.120	0.120

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Beta coefficient	1.340	1.000	0.750
Return on the NSE index	0.185	0.185	0.185

Required:

(i) What is the beta coefficient? (3 marks)
(ii) Interpret the beta coefficient of shares A, B and C. (3 marks)
(iii) Using the Capital Asset Pricing Model, compute the expected return on shares A, B and C. (3 marks)
(iv) Can the beta coefficient be less than zero? Explain (1 mark)

(Total: 20 marks)

QUESTION THREE

Mr. Kakai Manufacturing Co. Ltd has an average selling price of Sh.1000 for a component it manufactures for sale in the local market. Variable costs are Sh.700 per unit and fixed costs amount to Sh.17 million.

The company has financed its assets by having issued 40,000 ordinary shares.

Another company in the same industry, Bantu Manufacturers, has the same operating information but has financed its assets with 20,000 ordinary shares and a loan, which has an interest payments of Sh.160,000 per year. Both companies are in the same 40% tax bracket and have sales of Sh.70 m in the current financial year.

Required:

(a) For each company, determining the degree of operating leverage and the degree of financial leverage. (4 marks)

(b) Calculate the degree of combined leverage for each firm. Explain the difference in the result. (4 marks)

(c) Compute the break-even points for the two companies. What are your observations? (4 marks)

(d) Calculate the earnings per share (EPS) at the point of indifference between the two companies earnings. (4 marks)

(f) Explain the position of Modigliani and Miller (MM) with respect to the use of leverage in a firm. (4 marks)

(Total: 20 marks)

QUESTION FOUR

(a) Explain what you understand by the term Market efficiency and discuss its implications to the finance manager. (10 marks)

(b) Discuss the major theories that explain the behaviour of the yield curve and discuss the implication of yield curve analysis in financial management. (10 marks)

(Total: 20 marks)

QUESTION FIVE

(a) Discuss the main phases/stages of projects development in public sector. (10 marks)

(b) Outline the major causes of public projects failure. (10 marks)

(Total: 20 marks)

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REVISION PAPER 4

QUESTION ONE

You are the chief accountant of Deighton Plc. which manufactures a wide range of building and plumbing fittings. It has recently taken over a small unquoted competitor, Linton Ltd. Deighton is currently checking through various documents at Linton"s head office. Including a number of investment appraisals. One of these, a recently rejected application involving an outlay of equipment of Sh.900,000, is produced below. It was rejected because it failed to offer Linton"s target return on investment of 25% (average profit-to-initialinvestment outlay). Closer inspection reveals several errors in the appraisal.

Evaluation of profitability of proposed project
NT17 (all values in currency year prices)

Items (Sh."000")	0	1	2	3	4
Sales		1,400	1,600	1,800	1,000
Materials		(400)	(450)	(500)	(250)
Direct labour		(400)	(450)	(500)	(250)
Overheads		(100)	(100)	(100)	(100)
Interest		(120)	(120)	(120)	(125)
Depreciation		(225)	(225)	(225)	(225)
Profit pre-tax		155	255	355	55
Tax at 33%		(51)	(84)	(117)	(18)
Post tax profit		104	171	238	37

Outlay	
Stock	(100)
Equipment	(900)
Market research	(200)
	(1,200)

$$\text{Rate of return} = \frac{\text{Investment profit}}{\text{Investment}}$$

$$= \frac{\text{Sh.138}}{\text{Sh.1,200}} = 11.5\%$$

You discover the following further details:

1. Linton"s policy was to finance both working capital and fixed investment by a bank overdraft. A12% interest rate applied at the time of the evaluation.

2. A 25% writing down allowance (WDA) on a reducing balance basis is offered for new investments. Linton"s profits are sufficient to utilize fully this allowance throughout the project.

3. Corporate tax is paid a year in arrears.

4. Of the overhead charge, about half reflects absorption of existing overhead costs.

5. The market research was actually undertaken to investigate two proposals, the other project also having been rejected. The total bill for all this research has also been paid.

6. Deighton itself requires a nominal return on new project of 20% after taxes, is currently ungeared and has no plans to use any debt finance in the future.

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Required:

(a) Identify the mistakes made in Linton"s evaluation. (10 marks)

(b) Restate the investment appraisal in terms of post-tax net present value and recommend whether or not Deighton should undertake the project. (10 marks)

(Total: 20 marks)

QUESTION TWO

(a) XYZ company Limited is considering a major investment in a new productive process. The total cost of the investment has been estimated at Sh.2,000,000 but if this were increased to Sh.3,000,000, productive capacity would be substantially increased. Because of the nature of the process, once the basic plant has been established, to increase capacity at some future date is exceptionally costly. One of the problem facing management is that the demand for process output is very uncertain. However, the market research and finance departments have been able to produce the following estimate:

Investment A (Sh. 3M)

Condition	Probability	Year	**Annual cash flows (Sh.m)**
High demand (A_1)	0.3	1 – 4	1.0
		5 – 10	0.7
Moderate demand (A_2)	0.5	1 – 4	0.8
		5 – 10	0.4
Low demand (A_3)	0.2	1 – 10	0.1

Investment B (Sh. 2M)

Condition	Probability	Year	**Annual cash flows (Sh.m)**
High demand (B_1)	0.4	1 – 4	0.6
		5 – 10	0.5
Moderate demand (B_2)	0.4	1 – 4	0.6
		5 – 10	0.2
Low demand (B_3)	0.2	1 – 10	0.2

The cost of capital is 10%.

Required:

Compute the expected NPV of each of the project and state the one to be chosen. **(20 marks)**

QUESTION THREE

(a) Karim Ltd has annual earnings before interest and taxes of Sh.150 million. These earnings are expected to remain constant. The market price of the company"s ordinary shares is Sh.8.60 per share cum dividend and of debentures sh.1055.0 per debenture ex. Interest. An interim dividend of Sh.0.60 per share has been declared. Corporate tax is at the rate of 30% and all available earnings are distributed as dividends.
Karim"s long term capital structure is shown below:

	Sh.000
Ordinary share (Sh.2.5 par value)	125,000
Reserves	243,000
16% debenture 31.12.X4 (Sh.100 par)	236,970
	604,970

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Required:

Calculate the cost of capital of Karim Ltd according to the traditional theory of capital structure. Assume it is now 31.12.X1 and the capital structure is optimal.. (10 marks)

(b) Canalot Ltd is an all equity company with an equilibrium market value of Sh.32.5 million and a cost of capital of 18% per year. The company proposes to repurchase Sh.5 million of equity and to replace it with 13% irredeemable loan stock. Canalot Ltd"s earnings before interest and taxes are expected to be constant for the foreseeable future. Corporate tax is at the rate of 30%. All profits are paid out as dividends.

Required:

Using the assumptions of Modigliani and Miller explain and demonstrate how this change in capital structure will affect:

(i) the market value
the cost of capital
the cost of equity of Canalot Ltd. (15 marks)

(Total: 25 marks)

QUESTION FOUR

Kianjoya company Ltd has 2 million ordinary shares outstanding at the current market price of Sh.60 per share. The company requires Sh.8 million to finance a proposed expansion project. The board of directors has decided to issue a 2 for 25 rights at a subscription price of Sh.50 per share. The expansion project is expected to increase the firm"s annual cash flows by Sh.1,660,000. Information on this project will bereleased to the market together with the announcement of the rights issue. The company paid a dividend of sh.6 per share last year. This dividend together with the company"s earnings is expected to grow at 6% annually.

Required:

(i) Compute the price of the shares after the announcement of the rights issue but before they start selling ex-rights. (9 marks)

(ii) Compute the theoretical value of rights and the theoretical ex-rights price of the shares. (6 marks)

(Total: 15 marks)

QUESTION FIVE

Rodfin plc is considering investing in one of two short-term portfolios of four short-term financial investments in diverse industries. The correlation between the returns of the individual components of these investments is believed to be negligible.

Portfolio 1

Investment	Beta	Expected return %	Standard deviation of return	Amount invested Sh. million
A	1.4	16	7	3.8
B	0	6	2	5.2
C	0.7	10	5	6.1
D	1.1	13	13	2.9

Portfolio 2

Investment	Beta	Expected return %	Standard deviation of return	Amount invested Sh. million
A	1.2	14	9	7.1

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B	0.8	11	4	2.7
C	0.2	7	3	5.4
D	1.5	17	14	2.8

The managers of Rodfin are not sure of how to estimate the risk of these portfolios, as it has been suggested to them that either portfolio theory or the capital asset pricing model (CAPM) will give the same measure of risk. The market return is estimated to be 12.5% and the risk free rate 5.5%.

Required:

(a) Discuss whether or not portfolio theory and CAPM give the same portfolio risk measure. (10 marks)

(b) Using the above data estimate the risk and return of the two portfolios and recommend which one should be selected. (10 marks)

(Total: 20 marks)

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REVISION PAPER 5

QUESTION ONE

(a) Let R_1 and R_2 be the returns from two securities with $E(R_1) = 3\%$ and $E(R_2) = 8\%$, $VAR(R_1) = 0.02$, $VAR(R_2) = 0.05$, and $COV(R_1 R_2) = -0.01$.

Assuming that the two securities above are the only investment vehicles available:

(i) If we want to minimize risk, how much of our portfolio will we invest in Security 1? (5 marks)

(ii) Find the mean and standard deviation of a portfolio that is 40% in Security 1. (5 marks)

(b) You are given that assets X and Y are perfectly correlated such that $R_y = 6 + 0.2R_x$ and the probability distribution of X is:

Probability	**Return on X, R_x %**
0.1	30
0.2	20
0.4	15
0.2	10
0.1	-50

What is the percentage of your wealth to put into asset X to achieve zero variance? (10 marks)

(Total: 20 marks)

QUESTION TWO

MBA-A-First-Bank of the Future Ltd (MAFBOTFL) must decide whether to open a new branch. The current market value of the bank is Ksh.200 million. According to company policy (and industry practice), the bank"s capital structure is highly leveraged. The present (and optimal) ratio of debt to total assets is 0.9.

MAFBOTFL"S debt is almost exclusively in the form of demand, savings, and time deposits. The average return on these deposits to the bank"s clients has been 5% over the past five years. However, recently interestrates have climbed sharply, and as a result MAFBOTFL presently pays an average annual rate of 6.25% on its accounts in order to remain competitive. In addition, the bank incurs a service cost of 2.75% per account. Because of an established tradition for banks to put a ceiling on the amount of interest they pay on their accounts (dating back to the late 1980s and now being revitalized by the Donde Bill) to some points below the treasury bill rate, the banking industry at large has been experiencing disintermediation – a loss of clients to the open money market (Government paper such as Floating Rate Bonds, Treasury bills, etc), where interest rates are higher. Largely because of the interest rate situation (which shows no sign of improving),

MAFBOTFL"s managing director has stipulated that for the branch project to be acceptable its entire cost of KSh.40 million will have to be raised by 90% debt and 10% equity. The bank"s cost of equity capital is 11%. MAFBOTFL"s marginal tax rate is 48%. Market analysis indicates that the new branch may be expected to return net cash flows according to the following schedule:

Year	Net cash flow **Ksh.000**
0	40,000
1	2,000
2	2,800
3	3,600
4	3,600
5	4,000
6 to infinite	4,000

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Required:

(a) Determine the weighted average cost of capital to be used in evaluating the acceptability of opening the new branch. (10 marks)

(b) On the basis of a suitable analysis advise on whether MAFBOTFL should open the new branch. (10 marks)

(Total: 20 marks)

QUESTION THREE

The following data have been developed for the Ujasiri Company Limited:

Year	Market Returns	Company Returns
2000	.27	.25
1999	.12	.05
1998	-.03	-.05
1997	.12	.15
1996	-.03	-.10
1995	.27	.30

The yield to maturity on Treasury Bills is 0.066 and is expected to remain at this point for the foreseeable future.

Required:

(a) The equation of the Security Market Line. (14 marks)
(b) The required return for the Ujasiri Company Limited. (3 marks)
(c) Is the Company correctly priced, underpriced or overpriced in the market? Explain. (3 marks)

(Total: 20 marks)

QUESTION FOUR

Mirror Young Cycles Ltd. wishes to design a new sports bicycle. The Company would have to invest Ksh.10,000 at the beginning of the first year for the design and model testing of the new bicycle. Mirror"s managers believe that there is a 60% 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 two prototype bicycles. This would cost Ksh.500,000 at the end of the first year. If the bicycles test well, Mirror would go into production. If they do not, the molds and prototypes could be sold for Ksh.100,000. The managers estimate that the probability is 80 percent that the bikes will pass testing and that Phase 3 will be undertaken.

Phase 3 consists of changing over one current production line to produce the new design. This would cost Ksh.1 million in Year 2. If the economy is strong at this point, the net value of sales would be Ksh.3 million, while if the economy is weak the net value would be Ksh.1.5 million. Both net values occur during Year 3, and the two states of the economy are equally likely. Mirror"s cost of capital is 12 percent.

Required:

(a) Construct a decision tree and determine the project"s expected NPV assuming that the project has average risk. (12 marks)

(b) Calculate the project"s standard deviation of NPV and coefficient of variation of NPV. (5 marks)

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(c) If Mirror"s average project had a coefficient of variation of between 1.0 and 2.0, would this project be of high, low or average stand-alone risk? (3 marks)

(Total: 20 marks)

QUESTION FIVE

(a) Explain the difference between private and public financial management. (10 marks)

(b) Outline the benefits of capital budgeting in public sector. (10 marks)

(Total: 20 marks)

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ANSWERS

QUESTION ONE

(a) Individuals (and institutions) become shareholders for economic motives (dividends/capital growth). The ability of a company to meet shareholders" objectives by paying a high dividend and/orhaving an increasing share price depends upon the future profitability of the company. If decision making was in the hands of the shareholders then one would assume that all decisions would be made in the pursuit of profitability. However, the divorce of ownership and control has put the responsibility for decision-making in the hands of professional directors/managers. It follows that decisions made by directors/managers ought to be consistent with shareholder wealth objectives. However, the directors/managers have considerable scope for pursuing their own personal objectives which might not be identical with those of the shareholders ie, there is likely to be a lack of complete goal congruence, and shareholders" objectives might be subordinated to managerialobjectives.

Share option schemes for managers (and other schemes discussed below) are intended to harmonise managerial and shareholder objectives by giving management the same wealth objectives as the shareholders. Managerial and shareholder objectives are still unlikely to become perfectly congruent since managers are likely to have objectives other than wealth maximization to be satisfied through their employment (e.g. power, status/esteem, control over resources etc) which might not be perfectly correlated with wealth maximization.

If managers are motivated by wealth objectives then they are likely to take decisions in line with maximizing the share price at the exercise date and to maintain/increase the price thereafter, in which case shareholders" interests will benefit.

Share option schemes for employees (as opposed to managers with decision making authority) are introduced for the same reason as those for managers, to improve profitability by working more efficient/effectively.

For a „reward" to be effective as a motivator it needs to be of a significant amount and the recipient needs to associate the reward with the actions which gave rise to it (i.e, efficient working leading to higher profit). In the case of share option schemes for employees if the number of shares which the employees could take up is high, and the company is fairly labour intensive then the shareholders"equity could well be diluted. If the number of shares per employee is small then the scheme is unlikely to act as a motivator.

If the options were to be given every year or twice per year, it would be difficult for the employees to associate such a „reward" with their own effort. For any particular employee the amount of corporate profit will almost entirely be outside his/her control. Managerial decisions, conditions in resource and profit markets, competitive actions etc. all have a very significant effect upon the level of profit and are not controllable by employees throughout the year. It is doubtful whether a share option scheme based on annual profit could motivate an employee to work more efficiently during any particular day or week his/her effort in any short period would have no noticeable/measurable affects on the corporate profit for the year. Shorter term bonus schemes relating to the efforts of individuals or small groups and based on their measurable performance are more likely to act as motivators.

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In summary, share option schemes for managers are likely to benefit shareholders while those for employees in general are less likely to have much benefit except to the extent that they may influence employees to take a greater interest in the affairs of the company.

(b) Other schemes can be sub-divided into two sections:

(i) those giving rewards based on overall corporate financial performance;

(ii) those giving rewards based on the financial performance of the sub-unit for which the individual manager is responsible. (Investment center, profit center, revenue center or cost center.)

The latter type may well be preferable since they relate reward with individual responsibility.

Rewards can be in terms of cash „bonuses" or equity. Giving financial benefits to managers based on profits greater than budget or costs (lower than budget) on a periodic basis may well lead managers to take action to maximize profit or minimize cost in each accounting period. It is doubtful whether such actions would be consistent with the maximization of shareholder wealth since managers" focus on attention is the short term. Profits can be boosted in the short term by foregoing expenditures necessary for longer term profitability. If the benefit is in the form of equity then to harmonise shareholder and management objective some restrictions should be imposed concerning the sale by management of their equity, otherwise „short-termism" could be pursued.

Share option schemes can overcome such problems of concentrating on the short term by careful selection of the exercise date of the options. The exercise date should not be too early because of „short-termism" nor too late because this would considerably reduce the motivational force.

QUESTION TWO

(a) The weak form of the efficient market hypothesis states that the current share price reflects all information contained in the past price movements of that share. This implies that a study of the trends in share prices over a prior period will not help in predicting the way in which the value or price of those shares will move in the future. In other words there is no place for Chartism or technical analysis. Statistical evidence suggests that the efficient market hypothesis does hold in its weak form.

The semi-strong form of the efficient market hypothesis encompasses the weak form and adds that share prices also reflect all current publicly available information, for instance a detailed analysis of published accounts. If the semi-strong form holds, then a detailed analysis of published accounts will not assist in a prediction of future share price movements, since the share price already contains all relevant information shown in those accounts or made public since the issue of those accounts. As such it would only be possible to predict share price movements if unpublished information were known, in other words through insider information. Statistical evidence suggests that the semi-strong form of the efficient market hypothesis is valid.

The strong form of the efficient market hypothesis proposes that the current share price reflects all information relevant to the company, whether or not that information has been made public. If this is the case then it will never be possible to predict share price movements. The implication of this statement is that there would be no scope for gains to be made on share trading through the obtaining of inside (unpublished) information. Clearly this appears not to hold in practice, since legislation has been set to prevent insider dealing.

(b) **Share price rises after announcement of high earnings.**

The market will have assessed the likely level of the company"s earnings from information which has been available to the public and the share price will be based on that assessment. If subsequent information suggests that the estimate of earnings was inaccurate the share price should adjust

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immediately under the semi-strong form of the efficient market hypothesis. In the situation described there was an immediate share price movement, but this continued over the following two or three days. This would suggest that the market is not absolutely efficient in the semi-strong form, because if it were the entire adjustment should have occurred immediately on announcement of the earnings figure.

It is also true that the market is not efficient in the strong form, otherwise the high earnings figure would have been known before it was published and as such reflected in the share price. Since the share price moved on announcement of the earnings, the strong form cannot hold.

Return on professionally managed portfolios

The suggestion that the return on professionally managed portfolios is likely to be no better than that which could be achieved by any investor would be supported by the strong form of the efficient market hypothesis. Assuming portfolio managers are not party to inside, unpublished information, this view would also be held by the semi-strong form of the efficient market hypothesis. However, if this proposition were to be unduly accepted there would be no demand for professionally managed portfolios. Since this is not the case, investors must perceive some benefit of placing their funds in the hands of portfolio managers. This would therefore suggest that the market is not efficient in either the semi-strong or strong form.

Share price movements around the fiscal year end

The downward movement on share prices just before the year end followed a subsequent upward movement is due more to supply and demand effects than the efficient market hypothesis. There is no information specific to a particular security which causes the managers of portfolios or other investors to sell and then re-buy: it is simply the result of tax effects which apply universally to all shares across the market.

QUESTION THREE

CEDER LTD

(a) **Calculation of tax liability**

	Year 1 Sh.	Year 2 Sh.	Year 3 Sh.	Year 4 Sh.	Year 5 Sh.	Year 6 Sh.
Standard						
Operating cash flows	20,500	22,860	24,210	23,410		
Capital allowance	12,500	9,375	7,031	21,094*		
	8,000	13,485	17,179	2,316		
Taxation (35%)	2,800	4,720	5,013	811		
De-luxe						
Operating cash flows	32,030	26,110	25,380	25,940	38,560	35,100
Capital allowance	22,000	16,500	12,375	9,281	6,961	20,883*
	10,030	13,005	13,005	16,659	31,599	14,217
Taxation (35%)	3,511	4,552	4,552	5,831	11,060	4,976

*Including balancing allowance

Forecast after-tax cash flows

	Year 0 Sh.	Year 1 Sh.	Year 2 Sh.	Year 3 Sh.	Year 4 Sh.
Standard					
Fixed assets	(50,000)				
Working capital	(10,000)				10,000**
Operating cash flows		20,500	22,860	24,210	23,410
Taxation			(2,800)	(4,720)	(6,013)
	(60,000)	20,500	20,060	19,490	27,397
Discount factor (12%)		0.893	0.797	0.712	0.636
Present values	(60,000)	18,307	15,988	13,877	17,424

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Payback period is approximately three years
Net present value is *Sh*.5,136

	Year 0 Sh.	Year 1 Sh.	Year 2 Sh.	Year 3 Sh.	Year 4 Sh.	Year 5 Sh.	Year 6 Sh.
Standard							
Fixed assets	(88,000)						
Working capital	(10,000)						10,000**
Operating cash flows		32,030	26,110	25,380	25,940	38,560	35,100
Taxation			(3,511)	(3,363	(4,552)	(5,831)	(11,060)
	(98,000)	32,030	22,599	22,017	21,388	32,729	34,040
Discount factor (14%)		0.877	0.769	0.675	0.592	0.519	0.456
Present values	(98,000)	28,090	28,090	14,861	12,662	16,986	15,522

Payback period is approximately for four years
Net present value is *Sh*.5,510

** Assumes working capital is released immediately. In reality some time-lag will exist.

Normally the project with the highest NPV would be selected. However projects have unequal lives, it can be argued that although the de-luxe higher NPV, this is only achieved by operating for two more years. The machines are to fulfill a continuing production requirement the time factor to be considered.

The annual equivalent cost approach is not appropriate as both machines have different level of risk. In this situation the most useful approach is to … infinite reinvestment in each machine and calculate their NPVs to infinity.

$$NPV\ \infty = \frac{\text{NPV of the investment} \div \text{Present value of an annuity of appropriate years and discount rate}}{\text{Discount rate}}$$

Standard:

$$NPV\ \infty = \frac{5.136 \div 3.037 \neq}{0.12} = £14{,}092$$

De luxe

$$NPV\ \infty = \frac{5.510 \div 3.889 \neq}{0.14} = £10{,}120$$

≠ The present values of annuities are taken for four and six years as these are the useful lives of the projects.

As the standard machine has the higher NPV ∞, it is recommended that this machine should be purchased. An alternative approach to the problem of different lives might be to assume a reinvestment rate for the shorter investment and to use this rate to equalize the lives of the investments.

(b) Lease payments are usually made at the start of the year.

	Year 0 Sh.	Year 1 Sh.	Year 2 Sh.	Year 3 Sh.	Year 4 Sh.	Year 5 Sh.
Lease						
Cost of machine saved	50,000					
Capital allowance cost			(4,375)	(3,281)	(2,461)	(7,383)
Lease payments	(15,000)	(15,000)	(15,000)	(15,000)		
Tax relief on lease		5,250	5,250	5,250	5,250	
Net cash flow of lease	35,000	(9,750)	(14,125)	(13,031)	2,789	(7,383)

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Discount factor (7.15%)		0.933	0.871	0.813	0,759	0.708
	35,000	(9,097)	(12,303)	(10,594)	2,117	(5,227)

Net present value is (Sh.104).

As the net present value is negative, it appears that the purchase of the machine is the recommended alternative.

The choice of discount rates in lease versus buy analysis is contentious. The approach used here is to regard the lease as an alternative to purchasing the machine using debt finance. The discount rate is, therefore, the amount that the company would have to pay on a secured loan on the machine, the loan being repayable on the terms that are implicit in the lease rental schedule. This discount rate is the after-tax cost of the equivalent loan, 11%(1-0.35) = 7.15%.

This discount rate is only likely to be valid if leases and loans are regarded by investors as being equivalent, and all cash flows are equally risky.

QUESTION FOUR

(a) (Tutorial note: as there are only three projects to be considered (and only two of these can be adopted) the simplest solution is to calculate the standard deviations and mean returns of the two asset portfolios directly.)

Portfolio (50% Project 1: 50% Project 2)

Profitability	Return		Return deviations*	(Return deviations)^2 x probability
0.2	(2 x 0.5) + (5 x 0.5)	= 3.5	(7.95)	12.64
0.3	(8 x 0.5) + (9 x 0.5)	= 8.5	(2.95)	2.61
0.3	(16 x 0.5) + (12 x 0.5)	= 14.0	2.55	1.95
0.2	(25 x 0.5) + (15 x 0.5)	= 20.0	8.55	14.62
1.0	Expected value	= 11.45		Variance = 31.82

(*Estimated return = Expected value)

Standard deviation = $\sqrt{31.82} = 5.64$

Portfolio (50% Project 1 : 50% Project 3)

Profitability	Return		Return deviations*	(Return deviations)^2 x probability
0.2	(2 x 0.5) + (6 x 0.5)	= 4.0	(7.15)	10.22
0.3	(8 x 0.5) + (10 x 0.5)	= 9.0	(2.15)	1.39
0.3	(16 x 0.5) + (11 x 0.5)	= 13.5	2.35	1.66
0.2	(25 x 0.5) + (11 x 0.5)	= 18.0	6.85	9.38
1.0	Expected value	= 11.15		Variance = 22.65

Standard deviation = $\sqrt{22.65} = 4.76$

Portfolio (50% Project 2 : 50% Project 3)

Profitability	Return		Return deviations*	(Return deviations)^2 x probability
0.2	(5 x 0.5) + (6 x 0.5)	= 5.5	(4.50)	4.05
0.3	(9 x 0.5) + (10 x 0.5)	= 9.5	(0.50)	0.08
0.3	(12 x 0.5) + (11 x 0.5)	= 11.5	1.50	0.68

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0.2	(15 x 0.5) + (11 x 0.5)	= 13.0	3.00	1.80
1.0	Expected value	= 10.0		Variance = 6.60

Standard deviation = $\sqrt{6.60} = 2.57$

Summary

Projects	**Return**	**Risk (standard deviation)**
1 and 2	11.45	5.64
1 and 3	11.15	4.76
2 and 3	10.00	2.54

No portfolio is absolutely dominant in mean variance efficiency terms ie, higher return is always accompanied by higher risk. Much will depend upon the investors" utility functions for risk but portfolio (2 and 3) seems to offer a fair return for a very low risk.

Tutorial note: an alternative approach using covariances is given below:
Calculation of expected return and risk.

(a) **Project 1**

Return %	Probability		Return deviations	(Return deviations)² x probability
2	0.2	0.4	(10.6)	22.47
8	0.3	2.4	(4.6)	6.35
16	0.3	4.8	3.5	3.47
25	0.2	5.0	12.4	30.75
	Expected return	12.6	Variance	= 63.04

Project 2

Return %	Probability		Return deviations	(Return deviations)² x probability
5	0.2	1.0	(5.3)	5.62
9	0.3	2.7	(1.3)	0.51
12	0.3	3.6	1.7	0.87
15	0.2	3.0	4.7	4.42
	Expected return	10.3	Variance	= 11.42

Project 3

Return %	Probability		Return deviations	(Return deviations)² x probability
6	0.2	1.2	(3.7)	2.74
10	0.3	3.0	0.3	0.03
11	0.3	3.3	1.3	0.51
11	0.2	2.2	1.3	0.34
	Expected return	9.7	Variance	= 3.62

Projects 1 and 2

Expected return is $\frac{12.6+10.3}{2} = 11.45\%$

Portfolio risk, using

$$\sigma_p = \sqrt{\sigma_A^2 x^2 \sigma_B^2 (1-x)^2 + 2x(1-x)\ covariance_{AB}} \text{ where}$$

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A and B are projects in a two project portfolio.

σ_p is portfolio risk

σ_A is $\sqrt{Varianceofproject A}$

σ_B is $\sqrt{Varianceofproject B}$

x is the proportion of the total investment that is invested in project A.

Covariance between Projects 1 and 2 is:

(Return deviation 1) x (Return deviation 2) x (Probability)

(10.6)	(5.3)	0.2	=	11.24
(4.6)	(1.3)	0.3	=	1.79
3.4	1.7	0.3	=	1.73
12.4	4.7	0.2	=	11.66
		Covariance	=	26.42

$\sigma_p = \sqrt{63.04(0.5)^2 + 11.42(0.5)^2 + 2(0.5)(0.5)26.42}$

$= \sqrt{15.76 + 2.86 + 13.21}$

$= 5.64$

Projects 1 and 3

Expected return is $\frac{12.6 + 9.7}{2} = 11.15\%$

Covariance between Projects 1 and 3 is

(Return deviation 1) x (Return deviation 2) x (Probability)

(10.6)	(3.7)	0.2	=	7.84
(4.6)	(0.3)	0.3	=	(0.41)
3.4	1.3	0.3	=	1.33
12.4	1.3	0.2	=	3.22
		Covariance	=	11.98

$\sigma_p = \sqrt{15.76 + 3.62(0.5)^2 + 2(0.5)(0.5)11.98}$

$= \sqrt{15.76 + 0.91 + 5.99}$

$= 4.76$

Projects 2 and 3

Expected return is $\frac{10.3+9.7}{2} = 10\%$

Covariance between Projects 2 and 3 is

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(Return deviation 1) x (Return deviation 2) x (Probability)

(5.3)	(3.7)	0.2	=	3.92
(1.3)	0.3	0.3	=	(0.12)
1.7	1.3	0.3	=	0.66
4.7	1.3	0.2	=	1.22
		Covariance	=	5.68

$$\sigma_p = \sqrt{11.42(0.5)^2 + 3.62(0.5)^2 + 2(0.5)(0.5)5.68}$$

$$= \sqrt{2.86 + 0.91 + 2.84}$$

$$= 2.57$$

(b) Weaknesses of the evaluation technique used in (a)

(i) It only considers the diversification effects of a two asset portfolio. The impact of the new projects on all Beweast"s existing projects would be much more important.

(ii) Accurate data on returns and probabilities is

required. Other information:

(i) Are the projects of different lives?
(ii) How have the returns been measured?
(iii) Can further cash be raised if all the projects can be demonstrated to have positive NPV"s?

(c) Reasons for the lack of use of portfolio theory

(i) If we wished to analyse the impact of the new project on all of Beweast"s existing projects the number of calculations would be enormous.

(ii) Accurate forecasts of returns are required.

These two problems would make the practical application of portfolio theory a time consuming and costly business.

(d) One such alternative technique is the capital asset pricing model. Given certain assumptions (including perfect capital markets and homogeneous investor expectations) the capital asset pricing model states that the required rate of return on an investment is the risk free rate plus the market risk premium weighted by a premium for systematic (undiversifiable) risk. Systematic risk is measured by beta which relates the covariance between the expected return on the investment and expected return on the market portfolio to the variance of the market portfolio. The model may be used in the determination of an appropriate weighted average cost of capital to use as a discount rate in a capital investment, a rate which takes into account the specific systematic risk of the project concerned. The model is, however, subject to criticism with respect to its theoretical assumptions and practical application.

Other suggestions include:

Simulation
Sensitivity analysis
Certainty equivalents
Capital rationing techniques.

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QUESTION FIVE

(Tutorial note: when the examiner refers to „cost of capital" he is referring to the overall or weighted average cost of capital.)

(a) The first error made is to suggest using the cost of equity, whether estimated via the dividend valuation model or the capital asset pricing model (CAPM) as the discount rate. The company should use its overall cost of capital, which would normally be a weighted average of the cost of equity and the cost of debt.

Errors specific to CAPM

(i) The formula is wrong. It wrongly includes the market return twice. It should be:

$$r = r_f + (r_m - r_f)\beta$$

(ii) The equity beta of Folten reflects the financial risk resulting from the level of gearing in Folten. It must be adjusted to reflect the level of gearing specific to Wemere. It is also likely that the beta of an unlisted company is higher than the beta of an equivalent listed company.

(iii) The return required by equity holders i.e, the cost of equity, is inclusive of a weighted average of the cost of equity and the cost of debt.

Errors specific to the dividend valuation model

(i) The formula is wrong. It should be:

$$\frac{D}{p^1} + g$$

(ii) Treatment of inflation – as for CAPM.

(iii) Again the impact of the difference in the level of gearing of Wemere and Folten on the cost of equity has not been taken into account (to do so would require Modigliani and Miller"s theory of capital structure which the examiner would specifically mention if it is to be used).

Revised estimates of cost of capital

CAPM: required return = $r = r_f + (r_m - r_f)\beta$

For Folten

$$\beta\text{Equity ungeared} = \beta\text{Asset} = \beta\text{Equity geared} \times \frac{E}{E + D(1-t)} + \beta_D \times \frac{D(1-t)}{E + D(1-t)}$$

Assume βDebt = 0, D = 4,400

$$E = 13.80 \times \frac{1{,}800}{2.50} \text{ (= share price x no. of equity shares)}$$

$$= \text{Sh.}9{,}936$$

$$\beta\text{Equity ungeared} = 1.4 \times \frac{9{,}936}{9{,}936 + 4{,}400\,(1 - 0.35)}$$

$$= 1.087$$

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For Wemere

Assume βDebt = 0, D = 2,400, Equity value of Sh.10.6 million, debt costs of 13%.

$$1.087 = \beta\text{Equity geared} \times \frac{10{,}600}{10{,}600 + 2{,}400\,(1 - 0.35)}$$

$$1.087 = 0.872\ \beta\text{Equity geared}$$

βEquity geared = 1.25

Therefore Cost of equity = 12 + (18 – 12) x 1.25

= 19.5%

Therefore WACC = $19.5\% \times \frac{10{,}600}{10{,}600 + 2{,}400} + 13(1 - 0.35) \times \frac{2{,}400}{10{,}600 + 2{,}400}$

= 17.5%

Dividend valuation model

Folten

$$i = \frac{D}{P}^{1} + g$$

We calculate dividend growth rate:

$0.923(1 + g)^4 = 1.303$

$(1 + g)^4 = 1.412$

$1 + g = 1.09$

$g = 9\%$

$D_1 = 1.303(1 + 0.09) =$

1.420

$$i = \frac{1.420}{13.80} + 0.09$$

= 0.193 i.e, 19.3%

$$\text{WACC} = 19.3 \times \frac{10{,}600}{13{,}000} + 13(1 - 0.35) \times \frac{2{,}400}{13{,}000}$$

= 17.3%

(Tutorial note: Kequity geared could be adjusted using Modigliani and Miller (Assume Kdebt Folten = Kdebt Wemere).)

Kequity geared = Kequity ungeared + (Kequity ungeared – Kdebt) $\frac{D(1-t)}{E}$

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Where Kequity = cost of equity

Folten

$$19.3 = \text{Kequity ungeared} + (\text{Kequity ungeared} - 13)\frac{4{,}400\ (1-0.35)}{9{,}936}$$

19.3 = Kequity ungeared + (Kequity ungeared – 13) x 0.288

19.3 = 1.288 Kequity ungeared – 3.744

Kequity ungeared = 17.9%

Wemere

$$\text{Kequity geared} = 17.9 + (17.9 - 13)\ \frac{2{,}400\ (1-0.35)}{10{,}600}$$

$$= 18.6\%$$

$$\text{WACC} = 18.6\%\ x\ \frac{10{,}600}{10{,}600 + 2{,}400} + 13(1-0.35)\ x\ \frac{2{,}400}{10{,}600 + 2{,}400}$$

$$= 16.7\%$$

i.e, this reflects the lower level of gearing in Wemere.

(b) Both methods result in a discount rate of approximately 17.5%. They are both based on estimates from another company which has, for example, a different level of gearing. The cost of equity derived using the dividend valuation model is based on Folten"s dividend policy and share price and not that of Wemere. The dividend policy of Wemere (e.g. the dividend growth rate) is likely to be different.

CAPM involves estimating the systematic risk of Wemere using Folten. The beta of Folten is likely to be a reasonable estimate, subject to gearing, of the beta of Wemere.

CAPM is therefore likely to produce the better estimate of the discount rate to use. However, this will be incorrect if the projects being appraised have a different level of systematic risk to the average risk of Folten"s existing projects or if the finance used for the project significantly changes the capitalstructure of Wemere.

(c) (Tutorial note: the answer must address:

- Use of DCF
- Discounted payback
- Usefulness for small unlisted companies)

Discounted cash flow techniques allow for the time value of money and should therefore be used for all investment appraisal including that carried out by small unlisted companies. It is important for all managers to recognize that money received now is worth more than money received in the future. Discounting enables future cash flows to be expressed in terms of present value and for net present value to be calculated. A positive net present value indicates that the return provided by the project is greater than the discount rate.

One non-discounting method – accounting rate of return – is used because it employs data consistent with financial accounts, but it is not theoretically sound and is not recommended as a final decision arbiter.

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Nevertheless it registers appreciation of the impact of a new project on the financial statements and thus likely impact on users of these statements.

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REVISION PAPER2

QUESTION ONE

(Tutorial note: this question requires a demonstration of the arbitrage process. In part (d) a brief overview of the weakness of the M and M no tax position must be given.)

(a) **Cost of capital**

(i) **Karim plc**

Since the profits and hence dividends are expected to remain constant, the fomula $Vo = \frac{d}{i}$ is applicable.

Where Vo = ex div share price
d = dividend per share
i = cost of ordinary share capital

Annual profit = Sh.500,000

∴ Dividend per share $\frac{Sh.500,000}{1,000,000}$ = 50p per share

Market price = Sh.3 per share cum div
∴ Sh.2.50 per share

Applying above formula, $2.50 = \frac{0.50}{i}$

(ii) **Roshan plc**

Ordinary share capital

	Sh.
Annual profit	500,000
Less: Debenture interest	150,000
Available for dividends ∴	350,000
Dividend per share	0.35

Applying above formula, $1.40 = \frac{0.35}{i}$

$i = \frac{0.35}{1.40} = 0.25 or 25\%$

(iii) Roshan plc: weighted average cost of capital

Source	Market value Sh."000	Proportion	Cost of capital %	WACC %
Equity	1,400	0.528	25	13.20
Debentures	1,250	0.472	12	5.66
	2,650	1.000		18.86

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(iv) Summary of results:

	Cost of ordinary share capital %	Weighted average cost of capital %
Karim plc	20	10
Roshan plc	25	18.86

(b) **Explanation of differences in cost of ordinary share capital and weighted average cost of capital**

From the data given the difference in the cost of ordinary share capital must be easily explained in terms of the different gearing of the two companies. The effect of the high gearing of Roshan plc is to increase the level of financial risk and, therefore, decreased relative attractiveness of the ordinary shares.

This may be explained in terms of the objectives with which investors acquire and ordinary shares. In the first place investors will seek to maximize their return. However at the same time investors are in general averse to risk and, therefore, will seek to minimize the uncertainty of the variance of the returns about their expected values.

In any business investment there must be an element of business risk. The effect of a company using borrowing to increase its financial gearing is to magnify the effect of such business risk. This is because of the fixed nature of interest charges, which must be borne irrespective of the level of profitability and which, leaves a smaller margin of equity investment to carry the same absolute levels of variation in return.

Because, as indicated above, investors are averse to such uncertainty, they will demand a higher rate of return to compensate them for the higher level of uncertainty. This clearly explains why the cost of equity of Roshan plc, (25%) is higher than that of Karim plc, (20%).

However, two American writers, Modigliani and Miller have taken this a stage further and used a quantitative analysis to suggest that the relationship between the increasing costs of equity and the benefits of introducing cheaper debt finance must exactly cancel each other out (in the absence of taxation). The mechanism by which this takes place is known as the arbitrage process and is, indeed, described in the example below. This being so, the difference in the weighted average cost of capital of the two companies must be explained in one of three ways:

(i) The situation is an unstable one which will be rectified by investors carrying out arbitrage operations so as to take advantage of the gains which are available to them.

The data given does not coincide with investors" evaluations of the two companies and they are not, in fact, seen as identical (for example their respective earnings are subject to differing degrees of business risk).

The basic assumptions in the Modigliani-Miller hypothesis are not valid, and the data reflects their invalidity.

Any one of these three would provide an explanation. Despite a number of studies, the difficulty of evaluating data means there is as yet no conclusive evidence on the validity of the Modigliani -Miller hypothesis.

(c) **Mr Hashim**

(i) Present annual income 50,000 x Sh.0.35 = Sh 17,500

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Market value of holding 50,000 x Sh 1.40 = Sh 70,000

Amount to be borrowed

Mr Hashim"s level of risk will be unchanged if he employs personal gearing to the same extent as Rohan plc i.e, so that debt is 47.2% of total capital or so that debt and own funds are in the ratio 1250:1400 or 625:700. amount to be borrowed is therefore $\frac{625}{700} x70,000 = Sh.62,500$

= Number of shares to be purchased.

Total capital available = Sh 132,500 Sh (70,000 + 62,500)

Number of shares in Karim plc which can be purchased (ex div)

$$\frac{132,500}{2.5} = 53,000$$

(v)

Annual income following the scheme	Sh
Dividend receipts 53,000 @ 50p	26,500
Less: Interest @ 12% on Sh 62,500	7,500
Net income	19,000

Mr Hashim"s annual income would therefore increase by £1,500 or 8.5% as a result of thescheme.

(vi) Reservations

The level of gearing in Roshan plc is high. By adopting a similar high personal level of gearing Mr Hashim is accepting a high risk from which he has no limited liability.

Mr Hashim may find it difficult to borrow such a large sum unless he provides additional security. The cost may well be greater than the company"s borrowing rate.

Other investors may see the possibility of providing additional income by the same process thus increasing the share price of Karim. Mr. Hashim may therefore be required to pay the higher price thus reducing his anticipated increase.

Transaction costs have been ignored.

(d) Implications for the determination of the company"s optimum financial structure.

In the absence of taxation the Modigliani-Miller thesis suggests that the company should be indifferent as between differing capital structures.

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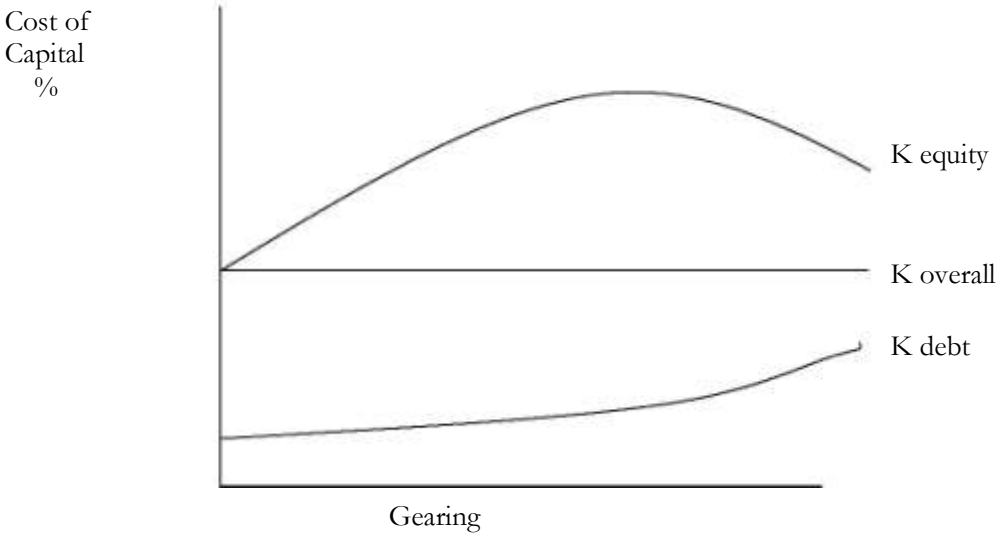
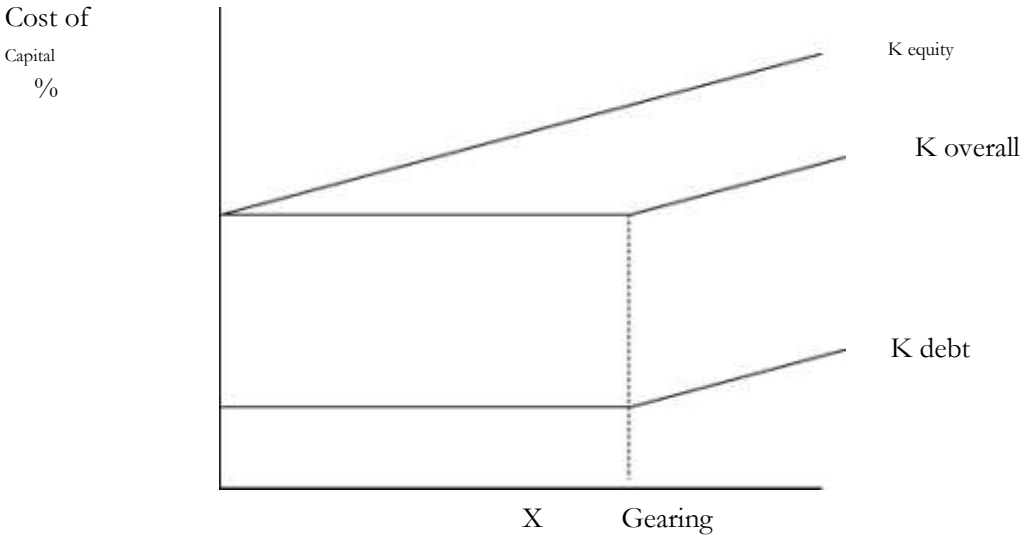


This view changes dramatically if we introduce the effects of taxation. If the Modigliani-Miller view is still accepted, then the cost of capital will decline at a gradient which is equal to the marginal rate of tax saving on the debt finance being introduced.

The Modigliani-Miller view conflicts with the traditional view, which suggested that the judicious use of debt finance could, in fact, lower the weighted average cost of capital so that a company could achieve an optimal financing structure, even without considering the effects of taxation.



There is no doubt that given their assumptions the Modigliani-Miller analysis is correct. The question, therefore, lies in terms of the assumptions. These may be summarized as follows:

(i) Company shares are traded in an efficient market. This means that if an opportunity arises for investors to improve their position without increasing their risk, they will recognize and take such opportunities. The level of transaction costs is so low as to be immaterial

In practice, there is considerable doubt as to whether the securities market is a sufficient approximation to an efficient market for such a process to work with any degree of reliability.

The thesis also presumes that investors can borrow and lend at the same interest rates as companies. This is unlikely for private investors who must operate at a disadvantage as against major corporate investors. This is emphasized within the UK by the legal structure and the difficulty of providing security on individual

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borrowings. On the other hand, in practice a significant proportion of investors are themselves institutional in nature and for these investors borrowing rates are likely to be similar to those of the companies in which they invest.

At high levels of gearing the cost of borrowed funds for the company is itself likely to start rising as the level of risk for lenders significant. In order to maintain the hypothesis of a constant weighted average cost of capital, Modigliani-Miller introduced the idea of „risk-seeking" investors who would be attracted by the high levels of financial leverage, and would enter the market to buy shares in highly geared companies, thereby lowering the cost of equity. There is no evidence to support this view, which seems highly improbable. However, it is not of great practical significance as most companies do not operate at the high levels of gearing where this would become important.

The analysis also assumes that personal taxes have no distorting impact upon returns to the investor. In practice many investors find that debt income is taxable at higher rates than equity income and this could make them reluctant to allow firms to take high levels of gearing. In this situation we would need to the corporation tax savings to the firm with the personal tax losses to its investors.

As indicated above the evidence on the validity of the Modigliani-Miller view is inconclusive. However, under either view in the presence of taxation there must be substantial advantages for companies introducing some elements of debt financing. The only question is the extent to which debt finance should be used. This is clearly made higher if the Modigliani-Miller view, rather than the traditional view, is acceptable. However, in practice the parameters are likely to be set by other factors, in particular, the attitude of the business managers to the uncertainty of running a highly geared company and putting their own jobs at risk. Therefore, although a theoretical conclusion may be elusive, a practical conclusion is to hand. This is that companies should borrow significant proportion of their financing requirements, and that the limitation is likely be put by the attitude to risk of the managers, rather than the investors of whose being they are purportedly acting.

QUESTION TWO

Answer Plan

(1) Director A: effects of a residual policy; advantages of using internal funds for investment; impact on ex div share price.
(2) Director B: tax effects of dividend policy; clientele effect.
(3) Director C: consideration of income requirements; relative risk of dividends and capital gains.
(4) Director D: effect of market imperfections.
(5) Conclusion.

Director A is in favour of financing all investment by retained earnings and other internally generated funds. This will probably entail the company following a residual dividend policy whereby any funds remaining after all investments are undertaken are paid out as dividends. Such a policy is based on the assumption that shareholders will prefer the company to reinvest attributable earnings, provided the return so earned exceeds any possible alternative return which the investors could otherwise achieve. However, there are the following limitations associated with this policy:

(i) Since dividends represent the balance of earnings after all worthwhile investments have been undertaken, they will necessarily fluctuate from year to year, depending on the level of investment available. In some years dividends will be zero, whereas in other years they could be fairly substantial unless the company chooses to retain earnings for a future year. Such fluctuations in dividends may not suit certain investors.

(ii) In order for a policy of fluctuating dividends to be accepted, shareholders must fully understand the company"s policy and have confidence in its investment criteria. This involves the free flow of information which only exist in a perfect market. Thus in the real world a policy of fluctuating dividends could reduce investor confidence and depress the share price.

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(iii) Finally a residual payment policy could lead to the company deviating from its optional capital structure of debt to equity.

However, there are major cost savings and benefits which arise through the use of retained earnings for investment.

(i) The raising of new finance externally involves high issue costs which are eliminated with the use of internal funds.

(ii) The issue of new equity except in the case of a rights issue, dilutes the control of existing shareholders.

(iii) Advance corporation tax is payable on dividends which may be irrecoverable in certain circumstances or, if not, is disadvantageous inasmuch as it represents an adverse timing effect on tax payments. Therefore a low dividend payment policy is preferable.

(iv) Certain investors may prefer returns to be mainly in the form of capital gains due to the tax effects. Although capital gains and income are taxed at the same marginal rate, investors may still have a preference for capital gains due to the annual exemption and the fact that tax is not payable until the gain is realized. Return in the form of capital gain would be achieved through a low dividend payout policy.

The share price does usually fall once a dividend has been declared and the shares are traded ex-dividend. But that fall in value usually reflects the fact that the forthcoming dividend no longer accompanies that share and thus the fall in value equates with the declared dividend. There is thus no associated decrease in the underlying value of the share.

Director B believes that the dividend policy should be tailored to the needs of individual shareholders. Since capital gains and income are taxed at the same marginal rate, all tax paying shareholders will prefer returns by way of dividends due to the associated tax credit. However, this will be complicated slightly by the existence of an annual exemption on capital gains. Any non-tax paying shareholders will likewise show a preference for dividends, since they will be able to reclaim the ACT (or tax credit) paid by the company. But, as was mentioned above, the tax advantage of capital gains may lie in the fact that tax is payable only when the gain is realized. The different shareholders may therefore have differing preferences concerning dividend policy.

The idea of the clientele effect, however, counters any argument of reviewing dividend policy. It suggests that through following a certain set dividend payout strategy the company has attracted a clientele of shareholders to whom this policy is suited. Therefore no benefit would be desired through attempting to alter the policy to meet individual preferences.

Director C suggests that many shareholders rely on dividends in order to satisfy current income requirements. An alternative exists, whereby shares could be sold in order to realize the capital gain and thus provide income. However, this is not equivalent to a dividend payment since transactions costs would be involved, share holdings would be diluted and such an action could be tax disadvantageous as discussed above. Thus Director C is correct in his assessment and a constant stable dividend policy is what is required.

However, Director C"s second point concerning risk is fallacious. A capital gain should be comparedwith total dividend payments not simply the current dividend and therefore both capital gains and dividends relate to future periods and are uncertain. In addition, both dividends and gains are determined by the same factors. They are both generated by the cash flows produced by the company and these cash flows are determined by the company"s investment strategy.

Director D is a proponent of the dividend irrelevancy hypothesis which states that a company"s value is dependent on the future earnings stream but independent of the particular dividend payment

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policy. In theory this hypothesis is correct, but it is dependent on perfect capital market conditions, which clearly do no exist in practice. Several market imperfections have already been discussed above which suggest that dividend policy is important.

These include the following:

(i) the information content of dividends;
(ii) the existence of transactions costs;
(iii) the existence of issue costs on raising new finance;
(iv) the clientele effect;
(v) taxation considerations.

There are in reality many factors to take into consideration in determining an optimal dividend policy, and despite considerable research into the subject, no absolute conclusion has been reached on the effect of dividend policy on share valuation.

QUESTION THREE

(a) We need to calculate the theoretical market capitalization of the Provincial group after the merger.

National"s initial earnings post-merger = Sh 9.3375m - Sh 1.5m = Sh 7.8375mProvincial believes that these can be improved by 20%, so

National"s maintainable earnings post-merger = Sh 7.8375m x 1.2 = Sh 9.405m

National"s P/E ratio remains at $\frac{166p}{Sh.9.3375m \div 45m} = 8$

∴ Value of National"s earnings = 8 x Sh 9.405m = Sh 75.24m.

The combined group therefore has the following value:

	Sh m
Provincial current market capitalization (14m x Sh 8.40)	117.6
Gain on disposal of property	16.0
Rationalisation costs	(4.5)
Disposal of National division	10.2
National"s earnings stream	75.24
	214.54

To obtain National"s 45m shares, Provincial must issue

$\frac{2}{9}$ x45m = 10m additional shares.

Provincial therefore will have 14m + 10m = 24m shares in issue.

Each share has a theoretical value of $\frac{Sh.214.54m}{24m} = Sh.8.94$

The effect on the share price of Provincial is a rise of Sh 8.94 - Sh 8.40 = Sh.0.54

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Each National share has a theoretical value of $\frac{2}{9}$xSh.8.94=Sh.1.99. The effect on the share price of National is a rise of Sh 1.99 - Sh 1.66 = 33p.

(b)

(i) The market might value National"s shares after the bid higher than the theoretical bid price because they believe that ultimately Provincial will have to pay more than currently offered for National. Perhaps there are other potential bidders who will be attracted into the contest by Provincial"s bid, and competitive pressures from the other bidders will push the price up. Perhaps National"s shareholders are loyal to the company and sense that they need to be substantially rewarded for giving up their shares because of what they regard as an attractive future for National as an independent company.

(ii) The market might value National"s shares after the bid lower than the theoretical bid price because they believe that the bid will fail. If National"s shares are substantially held by the founding family"s interests who would not sell at any price, the bid would largely be ignored by the market.

In theory Provincial should pay for National a price of one pound greater than the next available offer. If there are no other offers forthcoming, very little premium to the current market price need be paid, and all the synergistic benefits can accrue to the previous shareholders of Provincial.

(c) A cash alternative offers both advantages to potential acceptors of Provincial"s offer. One advantageis that of certainty. Cash has a known value, which can be invested in risk-free securities to offer a safe return. Shares offer a value which can vary from day to day in line with the vagaries of the market, and could fall swiftly if the anticipated merger benefits fail to materialize. Another advantage of cash is that it offers National shareholders an exit from their shares without having to pay transaction costs.

The disadvantage of cash is that a tax liability might arise for the shareholder on the forced disposal of his shares. However this depends on the tax status of the shareholder.

Indeed the relative attraction of cash over shares will depend strongly on the type of shareholders who are dominant (eg, charities, institutions, private investors etc) and their attitude to risk. For example charities are tax exempt and are generally risk-averse so might favour cash over shares.

In practice the cash alternative is generally set lower than the bid price implied by shares, but it would be worthwhile Provincial carrying out research into the types and beliefs of National"s shareholders before a final decision was taken.

(d) National's existing share price is Sh.1.66 per share.
At 10% gain implies a share price of 1.66 x 1.1 = Sh.1.826 per share.

There are 45m shares in issue to be each rewarded with Sh.1.826 per share, so the total value given to National"s shares is:

45m x Sh.1.826 = Sh 82.17m

The National shareholders therefore deserve $\frac{82.17}{214.54}$ = 38.3% of the shares in the enlarged group.

The number of new Provincial shares to be issued is $\frac{38.3}{100-38.3}$x14m=8.69m

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8.69 million new shares are issued to compensate 45m old shares, a share exchange of 1 new share for every 5.178 old share held.

The National shareholders therefore deserve $\frac{82.17}{214.54}$=38.3% of the shares in the enlarged group.

8.69 million shares are issued to compensate 45m old shares, a share exchange of 1 new share for every 5.178 old shares held.

QUESTON FOUR

(a) The following techniques are available for hedging against the foreign exchange risk involved in foreign trade (note that only four were required):

(i) **Forward market**

This involves a contract which is tailor-made i.e, is taken out for the exact amount of currency required. The future rate of exchange is fixed at the time the contract is entered into with the bank. The cost is determined by the forward rate quoted by the bank. The contract must be fulfilled on the due date (or within the due dates for an option forward contract). Therefore if, for example, a customer is late in paying, the firm will have to buy currency in order to meet the commitment under the forward contract.

(ii) **Financial futures market**

This offers the opportunity to buy/sell currency in standard amounts of a limited number of currencies at a specified time and rate. It is therefore cheaper than using a forward contract but cannot usually obtain the exact amount of currency needed and requires an initial deposit.

(iii) **Lead/lad payment**

In the case of paying for goods in a foreign currency, it is possible to pay for the goods in advance and thereby fix the exchange rate at the spot rate.

The cost is the time value of money between the normal due date and the earlier payment date.

(iv) **Money market**

Here the currency is exchanged at the time of the initial transaction at the spot rate and the currency is then lent/borrowed on the money market so as to accrue to the appropriate amount to settle the transaction on the due date. The cost will be determined by the interest rate differential between the two countries.

(v) **Foreign currency options**

Here the firm buys the possibility of buying („call") or selling („put") currency at an agreed rate, usually at any time within a specified period. It is possible to obtain a choice of exercise prices and maturity dates; the price of the option will vary according to the exercise price and maturity date chosen.

Because options give the holder the opportunity to „walk away" from the contract if it suits him, options are a more expensive means of covering foreign exchange risk.

(vi) **Invoice in the domestic currency**

For exports it is possible to invoice in the domestic currency. This is easier for the exporter but it passes the inconvenience and risk of foreign exchange on to the customer so it may result in lower sales.

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(b) (i) **Fidden**

Three months	Six months
£116,000 payment	$447,000 payment
$197,000 receipt	$154,000 receipt
	$293,000 payment

(1) **Forward market**

Three months: contract to sell $:

$$\$\frac{197{,}000}{1.714 - 0.0077} = £115{,}454 \text{ receipt in three months}$$

∴ Net payment = 116,000 – 115,454

= £546

Six months: contract to buy $:

$$\$\frac{293{,}000}{1.7106 - 0.0139} = £172{,}688 \text{ payment}$$

(2) **Money market**

Three months: borrow

$$\$\frac{197{,}000}{\left(1 + \frac{0.09}{4}\right)} = \$192{,}665$$

Convert at spot:

$$\$\frac{192{,}665}{1.714} \text{ (i.e, sell \$)} = £112{,}407 \text{ now – invest}$$

For three months:

$$£112{,}407 \times \left(1 + \frac{0.095}{4}\right) = £115{,}076 \text{ in three months}$$

∴ Net payment = 116,000 – 115,076

= £924

Six months: Lending amount is calculated as:

$$\$\frac{293{,}000}{\left(1 + \frac{0.06}{2}\right)} = 284{,}467$$

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∴ Need to buy \$ now – Cost \$ $\frac{284,467}{1.7106}$

Borrow £ for six months, have to repay:

$$£166,296 \times \left(1 + \frac{0.125}{2}\right) = £176,690$$

(ii) **Foreign currency options**

Six months have to pay \$293,000

Therefore, need option to sell/put £ in six months.

Option to sell at \$1.70

Net to put \$ $\frac{293,000}{1.70}$ = £172,353 i.e, $\frac{172,353}{12,500}$

= 13.8 (14 contracts)

(Tutorial note: this does not provide enough \$ because the price of the option is payable in \$ but it would be a good enough estimate in the examination and in fact is cheaper than going to fifteen contracts to obtain the full \$ requirement.)

	\$	£
Cost 12,500 x 14		175,000
Yields 175,000 x 1.70	297,500	
Option price 175,000 x 0.0345	(6,038)	
Pay supplier	(293,000)	
\$ shortfall	(1,538)	
Cost $\frac{\$1,538}{1.7106 - 0.0139}$		906
		175,906

If spot in six months, to sell £ i.e, buy \$, is:

1.7106 – 0.0139 = \$1.6967

it would be best to exercise option at \$1.70.

Option to sell at \$1.80

Need to put $\frac{\$293,000}{1.80}$ = £162,778

= 13.02 contracts

Use 13 contracts:

	\$	£
Cost 12,500 x 13		162,500
Yields 162,500 x 1.80	297,500	
Option price 162,500 x 0.0932	(15,145)	

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Pay supplier	(293,000)	
$ shortfall	(15,645)	
Cost $\frac{\$15,645}{1.7106 - 0.0139}$		9,221
		171,721

Again at a spot of $1.6967 it is better to exercise the option.

Overall the company, with the benefit of hindsight, would have been best to hedge through the $1.80 foreign currency options.

(iii) The advantage foreign currency options have over other methods of covering exchange risk is that they offer the opportunity to take advantage of beneficial movements in the exchange rate i.e, if the rate moves against the holder of the option, the option can be exercised (to cover the „downsiderisk") whereas if the rate moves in favour of the holder, the holder can allow the option to lapse and instead profit from the favourable movement in the exchange rate. This is not possible with a forward or futures contract.

QUESTION FIVE

(a) There are two courses of action available to the company: forward market cover or money market cover. These are considered in turn below.

Forward market cover

The company is to receive £3,000,000 in 3 months" time. Therefore in order to fix the exchange rate at that point in time (and the resultant dollar proceeds) the company could arrange to sell the sterling forward by setting up a forward contract.

The forward exchange rate is quoted as $1.5858 - $1.5873/£. The relevant rate for selling forward £ would be $1.5858/£ (which yields the smaller figure for $).

Therefore the forward sale of £3,000,000 would yield

£3,000,000 x $1.5858/£ = $4,757,400.

Exchange rate risk has been eliminated since the dollar receipt of $4,757,400 is guaranteed. In addition, even if the future spot rate of $1.5186/£($1.5985 x 95%) were certain, forward market cover would be preferable, since the latter 3 month spot rate would yield only

£3,000,000 x $1.5186/£ = $4,555,800

However, with the forward market cover there remains a shortfall over the $ proceeds which would be expected on the basis of the current spot rate. This shortfall amounts to:

$4,795,500 - $4,757,400 = $38,100 (given in question)

Money market cover

Again exchange rate risk may be effectively eliminated by borrowing sterling which will amount to £3,000,000 with accrued interest in 3 months" time and converting this sterling at the current spot rate into $ for investment. The amount of dollars accrued in the deposit account after 3 months represents the effective dollar receipt, as shown below. The £ loan will be repaid when the invoice amount of £3,000,000 is received.

Borrow sterling @ 15% interest for 3 months (3.75%)

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$\frac{3,000,000}{1.0375}$	£2,891,566
Convert to $ @ the spot rate	x$1.5985/£
Invest $ @ 9.5%	$4,622,168
Interest for 3 months (2.375%)	$ 109,777
Effective $ receipt	$4,731,945

As with forward market cover, this represents a shortfall over the $ receipt using the current spot rate, which amounts to

$4,795,500 - $4,731,945 = $63,555

Advice on course of action

Based on the initial computations, the forward market cover will convert the £3,000,000 receipt into $4,757,400 in 3 months" time, whereas the money market cover would yield $4,731,945. On this basis theforward market cover would be preferable as it gives the higher $ receipt. In addition it is completely riskless, whereas the money market cover relies on interest rates remaining constant over the 3-month period in order to eliminate exchange rate risk.

(b) Translation exposure relates to the consolidation of a foreign subsidiary"s accounts into the group accounts. The group financial statements will be denominated in the currency of the parent company and any balances in the subsidiary"s accounts denominated in its own currency will be subject to translation exposure. Such balances will usually be translated at the exchange rate prevailing at the balance sheet date. However, if exchange rates between the parent company"scurrency and the subsidiary"s currency vary, then the parent company"s valuation of such foreign currency items will vary over time, giving rise to translation risk or uncertainty. This will, however, only be converted into transactions risk, with a related cash-flow effect, if it is necessary for such foreign currency balances to be exchanged into the parent company currency, or if a foreign currency loan is required to be repaid by use of parent company funds. Therefore, translation exposure does not impose a major foreign exchange risk on a company, but merely impacts the accuracy of balance sheet items valued by use of an historic exchange rate.

The major link with transaction exposure relates to the method by which translation exposure may be hedged. The parent company may effectively finance the foreign subsidiary using its own funds or home currency funds, but such an action would give rise to potential transaction losses on exchange. In certain circumstances it is practical to provide a foreign subsidiary with capital from the parent company, as this may be cheaper than finance obtained from the country in which the subsidiary operates. However, there is little benefit to be derived from incurring such transaction exposure in order to hedge translation exposure.

(c) A foreign currency option gives the buyer of the option the right, but not the obligation, to buy or sell a currency at a specified rate of exchange at a specified time.

Advantages

(i) Foreign currency options limit downside risk whilst allowing companies to take advantage of favourable foreign exchange rate movements.

They are a useful hedge against risk when a company is unsure whether a future foreign exchange risk will occur, for example when tendering for a contract which it might not get, or issuing a price list in foreign currencies.

They provide an effective currency hedge, especially when foreign exchange markets are volatile.

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Disadvantages

(i) Cost. A premium is payable when the option is arranged, no matter whether or not the option is exercised.

(ii) Exchange traded options are only available in a small number of currencies with specific expiry dates (OTC options are much more flexible).

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REVISION PAPER3

QUESTION ONE

(a) Projects Net Investment = Purchase Cost + Installation Cost + Working Capital
= 760,000 + 65,000 (initial cost) + 185,000
= 825,000 + 185,000
Initial outlay = 1,010,000

(b) NPV

Year	1	2	3	4	5
Annual revenue (5%)	(520.00)	546.00	573.3	601.97	632.063
Operating costs (7%)	(115.00)	(123.05)	(131.66)	(138.25)	(147.93)
Depreciation $\frac{825-120}{5}$	(141.00)	(141.00)	(141.00)	(141.00)	(141.00)
	264.00	281.95	300.64	322.09	343.133
Less taxation (40%)	105.6	112.78	120.26	129.09	137.25
	158.4	169.17	180.38	193.62	205.88
Add depreciation	141.0	141.0	141.0	141.0	141.0
	299.4	310.17	321.38	334.62	346.88
Salvage value					120.0
					466.88
Release working Capital					185.0
	299.4	310.17	321.38	334.62	651.88
Discount factor @ 22%	0.819	0.672	0.551	0.451	0.370
Disc. Cash flows	245.209	208.434	177.081	150.656	241.195

Present value cash inflows = 1,022.576
Less net investments 1,010.000
12.5756 x 1000

NB: Net investments = 760,000 + 65,000 + 185,000 = 1,010,000

Decision: Since the NPV is positive i.e (Ksh.12,575.60), thus the project should be undertaken.

(c)

Year	Uncertain cash flow	Certainty Equivalent	Certain Cash flows	Disc. Rate 10%	Discounted cash flows
1	299,400	0.9	269,460	0.909	244,939
2	310,170	0.8	248,136	0.826	204,960
3	321,382	0.6	192,829.2	0.751	144,815
4	333,051	0.5	166,525.5	0.683	113,737
5	650,193	0.4	260.077.2	0.621	161,508
					869,959
			Less net investment		(1,010,000)
			NPV =		(140,041)

Decision:

Conclusion is that the acceptability of the project changes as NPV turns to negative (i.e Ksh.140,041). The problem would arise in either determination of the risk adjusted discount rate on certainty equivalent, otherwise the 2 approaches should provide consistent results.

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QUESTION TWO

(a) CAPM

Advantages:

1. It provides the market based means of measuring risks and relating them to the well diversified well market portfolio.

$$Bj = \frac{CovR_y R_m}{\sigma_m}$$

2. It states/indicates why only systematic risk is relevant in project appraisal. The unsystematic risk can be completely eliminated through diversification.

3. The variables required for its operational use are easily obtainable.

4. It is one of the best means of establishing risk adjusted discount rate on computation of K_s or required rate of return.

$$Rj = R_F + B_j(R_m R_F)$$

Disadvantages

1. It is strictly a single period model and must be used with caution in evaluation of multiperiod projects.

2. It only concentrate on the systematic risks and ignores other elements of risks (unsystematic risks) which may be relevant to the non-diversified investors.

3. The input data required for its operational use may be quite difficult to obtain practice e.g K_s, B_i required rate of return.

4. This model has been found not to perform in some instances e.g stocks with strong seasonality patterns.

5. The model only considers the level of return (total returns) and not the manner in which the returns are distributed (discussion on dividend theories or policies suggests that investors may prefer the packaging of the return i.e can either prefer dividends or capital gain).

(b) (i) <u>Beta Coefficient</u> – B_i is a measure of the sensitivity of the returns on a security or a portfolio to changes in the market portfolio.

B_i is a measure of the systematic risk of a security market portfolio.

$$\beta_i = \frac{Cov.R_j R_m}{\sigma_m^2}$$

B_i of market portfolio = 1

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(ii) Interpretation:

B_i of A = 1.340

This implies that if the returns of the market portfolio change by one unit those of share A change by 1.340. It basically implies then shares A return are quite sensitive to the changes in the market portfolio.

B_i of B = 1.000

This implies that if the returns on the market portfolio change by a unit those of share B also change by one unit. These shares are of comparable risks to the market portfolio.

B_i of C = 0.750

Implies that if the returns of the market portfolio change by a unit those of share C change by 0.750. It implies that share C are less sensitive to changes in the market portfolio and they are less risky.

(iii) Using CAPM, the expected return:

$$R_j = R_F + \beta_i(R_m - R_F)$$

Shares of A	=	12% + 1.34(18.5 – 12)%	=	20.71
Shares of B	=	12% + 1(18.5 – 12)%	=	18.5
Shares of C	=	12% + 0.75(18.5 – 12)%	=	16.875

$$\beta_j = \frac{CovR_j\, R_m}{\sigma_m^2}$$

B_j can be less than zero (negative) if the correlation of coefficient between a security and the market portfolio is negative.

QUESTION THREE

(a)

	KAKAI	BANTU
$DOL = \frac{Q(P-V)}{Q(P-V)-FC}$	$\frac{70{,}000(1{,}000-700)}{70{,}000(1{,}000-700)-17{,}000} = \underline{\underline{5.25}}$	$\frac{70{,}000(1{,}000-700)}{70{,}000(1{,}000-700)-17{,}000} = 5.25$
$DFL = \frac{Q(P-V)-FC}{Q(P-V)-FC-I-\frac{Pd}{1-T}}$	$\frac{70000(1000-700)-17000}{70000(1000-700)-17000-0} = 1$	$\frac{70000(1000-700)-17000}{70000(1000-700)-17000-160} = 1.042$

(b)

$DTL = \frac{Q(P-V)}{Q(P-V)-FC-I-\frac{Pd}{1-T}}$	$\frac{70{,}000(1{,}000-700)}{70{,}000(1{,}000-700)-17{,}000}$	$\frac{70{,}000(1{,}000-700)}{70{,}000(1{,}000-700)-17{,}000 - 160}$
	= 5.25	= 5.46

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Observation

Bantu Ltd has a high DTL due to the presence of fixed financing costs (Ksh.160,000)

(c) Break-even pf for the two companies

BEP the quantity that must be produced and sold to meet the fixed operating costs.

		KAKAI	**BANTU**
BEP=	$\dfrac{FC + I + \dfrac{Pd}{1-T}}{CMN - \text{contribution}}$	$\dfrac{17{,}000 + 0}{1{,}000 - 700}$	$\dfrac{17{,}000 + 160}{1{,}000 - 700}$
		= 56.67	= 57.2

Observations:

Bantu Ltd has to achieve a higher BEP to cover for the additional fixed financing costs.

(d) <u>EPS at the point of indifference</u> EPS is given by

$$\frac{(EBIT - I)(1 - T) - Pd}{N}$$

EBIT at point of indifference – since the EPS are the same

KAKAI

$$\frac{(EBIT_1 - I_1)(1-T) - Pd_1}{N_1}$$

$$\frac{(EBIT - 0)(0.6)}{40}$$

BANTU

$$\frac{(EBIT_2 - I_2)(1-T) - Pd_2}{N_2}$$

$$\frac{(EBIT - 160)(0.6)}{20}$$

40(0.6)EBIT 20(EBIT) – 16,000)0.6

$$\frac{0.6EBIT}{0.6} = \frac{1.2EBIT - 192{,}000}{0.6}$$

EBIT = 320,000

KAKAI EPS = $\dfrac{(320000 - 0)0.6 - 0}{40000} = 4.8$

BANTU EPS = $\dfrac{(320000 - 160000)0.6 - 0}{20000} = 4.8$

EPS at the point of indifference between co. earnings is Ksh..4800.

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Position of MM with respect to use of leverage (debt)

Without taxes, MM position is that debt has no effect on firm value ($V_L = V_U$)

With corporate taxes, MM position is that the levered firm commands a higher value because of the interest tax shied.

$V_L = V_U + P_V$ of ITS

With corporate and personal taxes, MM"s decision is that effect of leverage depends on the tax rate.

$$VL = VU + B\left[\frac{1-(1-TC)(1-TPS)}{1-TPd}\right]$$

4. With taxes and financial distress, MM argue is that debt (leveraged) is a two edged sword i.e it is advantageous and disadvantageous at the same time.

Advantage = in the sense that it enables tax savings
Disadvantage = reduces the value of the firm

$V_L = V_U$ + PV of ITS – PV of FDC PVITS = PV of interest (tax shield)

PVFDC = PV of financial distress costs (disadvantage of debt) i.e costs that arise due to excessive use of debt.

QUESTION FOUR

Market efficiency and its implications

Market Efficiency

Efficient markets are those markets that operate at low costs, prices security efficiently and allocates funds to firms and organizations with the most promising real investment opportunities.

From the above definition there are three types of market efficiency:

1. Operational efficiency – (low costs)
2. Pricing efficiency – (efficient price)
3. Allocational efficiency – (allocates funds)

Operational Efficiency

These market prices transaction services and cost which are as low as possible given the efforts associated with having these services provided.

Pricing efficiency (fair game)

These implies that the market prices security i.e security price reflect all the available information security prices adjust quickly and in an unbias manner to incorporate any new information as it becomes available. Since new information is not predictable the security prices will follow a random-walk.

Allocation efficiency

These implies that the markets allocates fund to firms with the most promising real investments opportunities. Allocation efficiency assumes operational and pricing efficiency.

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The most important efficiency to F.M is the pricing efficiency to enable him to maximize shareholders wealth.

Forms of market price efficiency

- Weak for
- Semi-strong form
- Strong form

Weak form

In this form the current security prices reflect information regarding the historical pattern of price movement. Therefore no trading strategy based on historical prices can yield above normal return.

Semi-Strong form

In this form, the current security prices incorporate historical pattern of price movements as well as all public available information about the company. An investor cannot out perform (do better) than the market by analyzing any public available information about any company.

Strong form

In this form, the current security prices already incorporate all public as well as privately held information. It implies that even those accessible to confidential (price sensitive) information cannot use it to derive superior returns or results.

Implications of market efficiency

1. **Timing of financial policy** e.g issue of redemption of shares. In an efficient there is no need oftiming financial policy e.g issue or sale of share since nobody knows the direction that the market will take e.g today"s low may be the highest in the next ten years.

2. **Issue of shares at a discount –**In an efficient market, the current security price reflect allavailable/relevant information. There is therefore no need for significant price discount to encourage investors to buy. If a firm issues shares at the current market prices it raises funds at a fair cost and investors also obtain a fair return of the risks assumed.

3. **Creative Accounting –**(basically manipulation of P/s data).
   In an efficient market there is no need to manipulate financial statement calculations to influence share prices since security prices only respond to fundamental information. Efficient market cannot be fooled.

4. **Merger as an investment decision –**In an efficient market, purchase of a share is zero NPVtransaction. This implies that if the firm acquires another at its current market capitalization, it simply breaks even. This question a rationale behind many mergers.

5. **Use of NPV as an appraisal technique –**NPV analysis assumes market efficiency i.e the returnsoffered by the investments are commensurate with the risks assumed. Use of NPV in an efficient market can provide misleading results.

   Theories that explain the behaviour of yield curve

Yield Curve is a curve basically that shows the trade off between the yield of a debt (Kd) instrument and itsterm (period to marketing).

Term structure of interest rates refers to the relationship between the yield to maturity and the terms of thedebt instrument.

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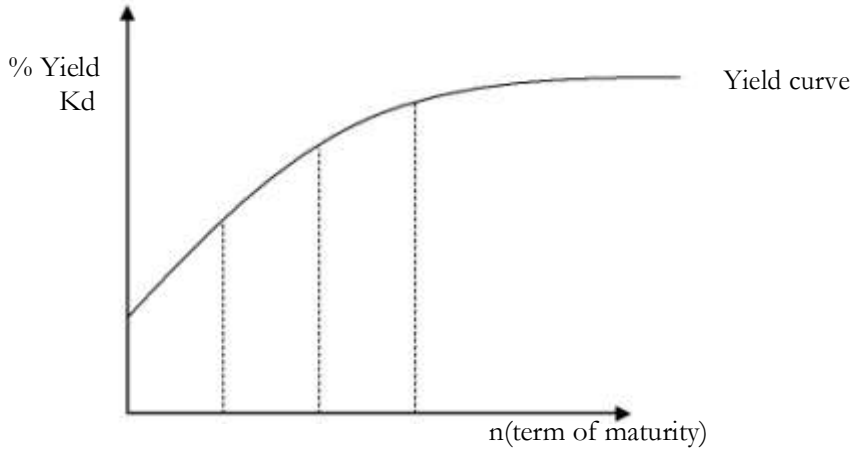


Theories – Term Structure theories

1. The expectation theory
2. The liquidity preference theory
3. The market segmentation theory

1. **The expectation theory**

This states that the shape of the yield curve depends on the markets expectations about future interest rates. If future interest rates are expected to rise, the shape of the yield curve will be upward sloping.

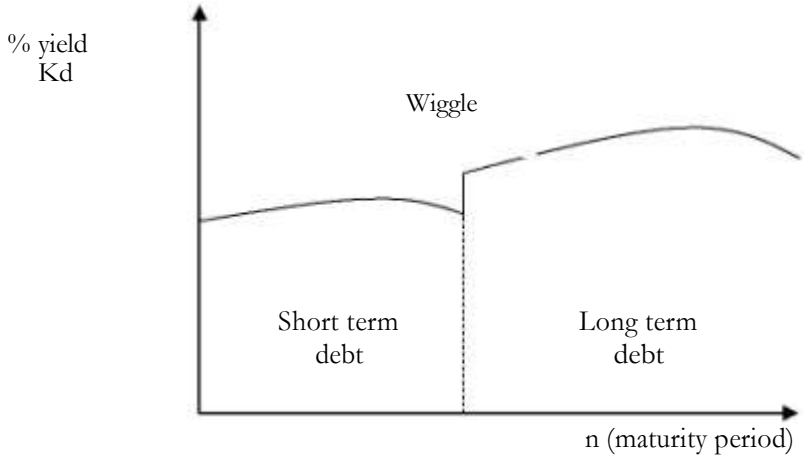
2. **Liquidity preference theory**

This states that investors normally prefer liquidity (cash) to other investments even the low risky one like Treasury bills. Investors therefore expect to be paid a high premium for being deprived of their liquidity for longer periods. The normal upward rising shape of the yield curve can be explained by this theory.

3. **Segmental Market Theory**

This states that the market short term and long term debt instruments are separate and distinct. The shape of the yield curve depends on the demand and supply forces in each market. There is a „wiggle" (form of disturbance) in the yield curve where the two markets meet.

The forces in each market are weakest where the wiggle occurs.



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Implications

The current shape of the yield reflects ( ) the market expectation about future interest. There is need to inspect current shape of the yield curve on designing lending and borrowing schemes.

e.g an upward rising yield curve indicates that interest rates are expected to rise. The firm should therefore avoid long term on variable rates, instead it can borrow long term at fixed rate or short term on variable rates.

QUESTION FIVE

Main phases/stages of projects and causes of project failure

Stages

1. Planning
2. Analysis
3. Selection
4) Implementation
5) Review

Planning

Concerned with articulation of broad investment strategy, also generation and preliminary screening of projects proposals.

Analysis

This involves a detailed analysis, evaluation of marketing technical financial, economic and ecological aspects of the projects.

Selection

This follows and offer overlaps analysis. It addresses the question of worthileness of the project based on various project criteria.

Implementation

This involves setting up of the facilities and translating the proposals into concrete projects.

Review

Involves evaluation of the project performance to determine whether any corrective action are required. Review should be done periodical to confirm actual and projected performance.

Causes of Project Failure

Project failure implies the failure of the project to meet its objective with a reasonable cost and time.

Main causes includes:

1. Failure to use the available project control techniques
2. Unclear objectives or plans
3. Poor project management (mis management)
4. Unclear responsibilities due to external interferences e.g political
5. Sub-contractor may fail
6. Labour problems e.g strike, go-slows, labour turnovers.
7. Lack of adequate information flow due to a poor management information system.
8. Poor resources used in the project e.g poor material, labour, poor equipments.
9. Cost escalations making the project not achievable within budgeted levels.

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REVISION PAPER4

QUESTION ONE

(a) Mistakes made in evaluation

Market research – historical or sunk cost hence irrelevant Depreciation – non-cash item thus irrelevant
Tax – not paid one year later
Interest charges – financing expenses and tax shield incorporated in after tax cost of debt capital 50% (half) of overheads is absorbed or allocated and thus not relevant to the project.
Tax shield on capital allowances has been ignored.
The interest on bank overdraft is the cost short term debt. Only overall cost of capital can be used for project appraisal.
Inflation has been ignored.

(b) Revised project appraisal

Year	0	1	2	3	4	5
Sales	-	1400	1600	1800	1000	-
Materials	-	(400)	(450)	(500)	(250)	-
Direct labour	-	(400)	(450)	(500)	(250)	-
Overheads (50%)	-	(50)	(50)	(50)	(50)	-
Capital allowance (W1)	-	(225)	(169)	(127)	(379)	-
	-	325	481	623	71	-
Less tax 1 yr later	-	-	(107)	(159)	(206)	(23)
Add back C. allowances	-	225	169	127	379	-
Initial capital	(900)	-	-	-	-	-
Stock (working capital)	(100)	-	-	-	100	-
Total cash flows	(1000)	550	543	591	344	(23)
PVIf20%,n	1.00	0.833	0.694	0.579	0.482	0.402
Present value	(1000)	458	377	342	166	(9.3)

Depreciable cost				900		
Less	C. allowance	@	25%	(yr 1)	(225)	
					675	
Less	C. allowance	@	25%	(yr 2)	(169)	
					506	
Less	C. allowance	@	25%	(yr 3)	(127)	
					379	
Less year 4 C. allowance					(379)	- Balancing figure
	Salvage value				0	

NPV = (1000) + 458 + 377 + 342 + 166 + (-9.3) = 333.7

Since NPV is positive, accept the project.

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QUESTION TWO

Investment A (3 million)

Condition	Sh."M" Cash flows	Probability	PV of Cash flow
High demand	(1.0 x 3.1699) + (0.7 x 4.3553 x 6.653)	0.3	1,575,650
Moderate demand	(0.8 x 3.1699) + (0.4 x 4.3553 x 0.683)	0.5	1,505,894
Low demand	(0.1 x 6.1446)	0.2	122,892
			3,561,436
Less: Initial cash-outflows			3,000,000
Net present value			561,436

Investment B (2 million)

Condition	Sh."M" Cash flows	Probability	PV of Cash flow
High demand	(0.6 x 3.1699) + (0.5 x 4.3553 x 0.683)	0.4	1,355,710
Moderate demand	(0.6 x 3.1699) + (0.2 x 4.3553 x 0.683)	0.4	993,750
Low demand	(0.2 x 6.1446)	0.2	245,784
			2,600,244
Less: Initial cash-outflows			2,000,000
Net present value			600,244

Decision:

Choose project B since it has high NPV of Sh.600,244.

Saving from the choice:		
	Project B	600,244
	Project A	561,436
		38,808

QUESTION THREE

(a) Since Karim has constant earnings all of which are distributed as dividends, the cost of equity can be estimated from: $Ke = \frac{D}{Po}$.

Earnings available to be paid as dividends as follows:

	Sh.("000")
Earning before interest and tax	150,000
Interest (236,970,000 x 16%)	37,920
	112,080
Tax at 30%	33,624
	78,456

$$\text{No. of shares} = \frac{\text{Sh.}125{,}000{,}000}{2.5} = 50 \text{ million shares}$$

$$Ke = \frac{78{,}456{,}000}{250{,}000{,}000 \times 8} = 0.19614$$

$$Ke = 19.61\%$$

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Cost of debt (using interpolation)

Year	Cash flow Sh.000	8% Disc. Factor	PV Sh.000	10% Disc. Factor	PV Sh.000
0	(1055)	1.000	(1055)	1.000	(1055)
1 -3	1.00(1-0.3)	2.577	288.60	2.497	278.50
3	1000(-)	0.794	794.0	0.751	751.0
		NPV	27.6		(25.5)

Interpolating:

Post-tax cost of debt:

$$Kd(1-t) = 8\% + \frac{27.6}{27.6 + 28.5} \times (10.8)$$

$$= 8\% + 1.04\%$$

$$= 9.04\%$$

$$\text{WACC} = Keg\frac{E}{E+D} + Kd(1-t)\frac{D}{E+D}$$

$$= 19.614\frac{400}{650} + 9.04\frac{250}{650}$$

$$= 12.02\% + 3.48$$

$$= 15.5\%$$

$$\text{Equity} = \frac{125{,}000}{2.5} \times 8 = 400{,}000$$

$$\text{Debt} = \frac{236{,}970}{1000} \times 1055 = 250{,}000$$

(b) Using Modigliani and Miller"s theory:

(i) The market value will equal the market equity financed, plus the PV of tax relief on any debt interest.

$V_g = V_u + D_t$
V_g = Sh.32.5M + (5M x 0.30)
= Sh.34M

D = Sh.5M
E = 29.00M

The market value will increase by sh.1.5M = (Sh.34M – 32.5M)

(ii) Using answer to (b) (III) below cost of capital

$$\text{WACC} = Keg\frac{E}{E+D} + Kd(1-t)\frac{D}{E+D}$$

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$$WACC = Ke\left[1 - \frac{Dt}{E+D}\right]$$

$$0.18\left[1 - \frac{5x0.3}{34}\right]$$

$$= 17.2\%$$

The weighted cost of capital has fallen by 0.8% due to the benefit of tax relief on debt interest payments.

(iii) The cost of equity:

$$WACC = Keg\frac{E}{E+D} + Kd(1-t)\frac{D}{E+D}$$

$$17.2 = Kegx\frac{29}{34} + 13(1-0.3)\frac{5}{34}$$

$$17.2 = Keg\frac{29}{34} + 1.338$$

$$15.862 = Keg\ \frac{29}{34}$$

$$Keg = \frac{15.862\ x34}{29}$$

Keg = 18.6%

QUESTION FOUR

(a) $Ke = \frac{d_1}{P_0} + g$

$$Ke = \frac{6(1.06)}{60} + 0.06$$

= 16.6%

Increase in the value of Assets

$\frac{1,660,000}{0.166 - 0.06}$	=	15,660,377.40
Increase in funds		8,000,000.00
Incremental value of shares	=	7,660,377.40
Incremental value of share	=	$\frac{7,660,377.40}{2,000,000}$

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= Sh.3.80

New share price = 60 + 3.80= 63.80

(b) Theoretical ex-right price

$$Px = Ps + (Po - Ps)\frac{N}{Nt1}$$

$$50 + (63.80 - 50)\frac{12.5}{13.5}$$

= 62.78

$$N = \frac{So}{S}$$

$$So = \frac{2{,}000{,}000 \text{x} 2}{25} = 160{,}000$$

So = 2,000,000

$$N = \frac{2{,}000{,}000}{160{,}000} = 12.5 \text{ rights}$$

Therefore $Px = Ps + (Po - Ps)\frac{N}{Nt1}$

$$= 50 + (63.50 - 50)\frac{12.5}{13.5}$$

= 62.78

Value of rights

$$R = \frac{Po - Ps}{N + 1} = \frac{63.80 - 50}{13.50} = 1.02$$

OR cum-right MPS – Ex-right

MPS 63.80 – 62.72 = 1.02

QUESTION FIVE

(a) Portfolio theory and the CAPM are not the same, although portfolio theory provides the basis of the more sophisticated CAPM approach to making investment decisions under conditions of risk.

The principal difference is that the CAPM is only concerned with systematic risk i.e that element of risk that cannot be removed by diversification.

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Thus it is unlikely that the two approaches will give the same portfolio risk measure unless the portfolio in question is sufficiently well diversified to eliminate fully unsystematic.

(b) We do not have information on whether shareholders have diversified portfolio, and consequently portfolio theory could be useful in this case because total risk should be considered.

Portfolio 1

Investment	Expected return % X	Invested Sh.M	X x Y
a	16	3.8	60.8
b	6	5.2	31.2
c	10	6.1	61.0
d	33	2.9	37.7
		18.0	190.7

Expected return = $\frac{190.7}{\%18} = 10.59$

Portfolio 2

Investment	Expected return % X	Invested Sh.M	X x Y
a	14	7.1	79.4
b	11	2.7	29.7
c	7	5.4	37.8
d	17	2.8	47.6
		18.0	214.5

Using the CAPM the weighted portfolio returns can be found as a measure of the beta of the portfolio return for the portfolios taking into account the level of risk.

The required ratio for the portfolio can be found using the following expression from the formular sheet.

$E(r_j) = r_f + [E(r_m) - r_f]B_j$

In this case $E(r_m) = 12.5\%$ and $r_f = 5.5\%$

Portfolio Investment	Beta X	Investment Sh.M	X x Y
a	1.4	3.8	5.3
b	0.0	5.2	0.0
c	1.7	6.1	4.3
d	1.1	2.9	3.2
		18.0M	12.8

Portfolio Beta = $\frac{12.8}{18} = 0.71$

$E(r_j) = 5.5 + (12.5 - 5.5)0.71 = 10.47\%$

Portfolio 2

Portfolio Investment	Beta X	Investment Sh.M	X x Y
a	1.2	7.1	8.5
b	0.8	2.7	2.2

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c	0.2	5.4	1.1
d	1.5	2.8	4.2
		18.0M	16.0

Portfolio Beta = $\frac{16}{18} = 0.89$

$E(r_j) = 5.5 + (12.5 - 5.5)0.89 = 11.73\%$

In both cases the expected return from the portfolio is above the required return as calculated using the CAPM. In practice Portfolio 1 is preferred as a lower risk level. If company uses portfolio theory as measure of risk, this can be estimated from

$$\sigma_p = \sqrt{\sigma_a^2 P_j^2 + \sigma_b^2 P_j^2 + \sigma_c^2 P_j^2 + \sigma_d^2 P_j^2}$$

Portfolio 1

$$\sigma_p = \sqrt{7^2(0.211)^2 + 2^2(0.289)^2 + 5^2(0.339)^2 + 13^2(0.161)^2} = 6.13\%$$

Portfolio 2

$$\sigma_p = \sqrt{9^2(0.394)^2 + 4^2(0.15)^2 + 3^2(0.3)^2 + 14^2(0.156)^2} = 4.3\%$$

Using portfolio theory, it is not clear which portfolio is to be preferred. The portfolio with the higher risk also has the highest return.

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REVISION PAPER 5

QUESTION ONE

(a) (i) We can minimize risk by setting the first derivate of expression for portfolio variance equal to as follows:

$$\frac{d(\sigma_p^2)}{dw} = 2w\sigma_1^2 - 2\sigma_2^2 + 2w\sigma_2^2 + 2e_{12}\sigma_1\sigma_2 - 4we_{12}\sigma_1$$

Solving for w (percentage of wealth to invest in security 1 to obtain the min-risk):

$$w = \frac{\sigma_2^2 - r_{12}\sigma_1\sigma_2}{\sigma_1^2 + \sigma_2^2 - 2r_{12}\sigma_1\sigma_2}$$

$$= \frac{.05 - (-.01)}{.02 + .05 - 2(-.01)}$$

$$= 2/3$$

or VAR(RP) = $w^2\sigma_1^2 + (1-w)^2\sigma^2 + 2w(1-w)Cov$

Substitute for known values:

VAR(RP) = $.02w^2 + .05(1-w)^2 - .01 \times 2w(1-w)$

Simplify: VAR(RP) = $.09w^2 - .12w + .05$

Differentiate = equate to zero and solve:

$.18w - .12 = 0$

$$w = \frac{.12}{.13}$$

$=2/3$

(ii) (RP) = .4 x 3% + .6 x 8%

σ_P = $.4^2 \times .02 + .6^2 \times .05 - 2(-4)(.6)(-.$
= .0164
= 12.81%

(b)

Pi	R_{xi}	PiR_{xi}	R_{xi}-e(R_x)	Pi(R_{xi}-E
0.1	30	3	20	0.4
0.2	20	4	10	0.2
0.4	15	6	5	0.1
0.2	10	2	0	0.0
0.1	-50	-5	-60	3.6
	E(R_x)=	10	VAR (R_x) =	4.3

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Pi	R_{yi}	PiR_{yi}	$P_i[R_{yi} - E(R_y)]^2$	$P_i[R_{xi} - E(R_x)]$
0.1	12	1.2	0.016	0.08
0.2	10	2.0	0.008	0.04
0.4	9	3.6	0.004	0.02
0.2	8	1.6	0.000	0.00
0.1	-4	-0.4	0.144	0.72
	$E(R_x)$=	8.0	VAR (R_x) = 0.172	Cov = 0.86

$VAR(R_P) = w^2VAR(R_x) + (1-w)^2VAR(R_y) + 2w(1-w)Cov(R_x,R_y)$

$= \quad 4.3w^2 + (1-w)^2 \times .172 + 0.86 \times 2w(1-w) = 0$

$= \quad .02752w^2 + .01376w + .00172 = 0$

$$w = \frac{-.01376 \pm \sqrt{.01376^2 - 4(.02753)(.00172)}}{2(.02752)}$$

$= \quad -0.25$

Thus –25% of wealth should be invested in asset x so as to achieve zero variance.

QUESTION THREE

(a)

Prob.(pi)	Rci	Pi*Rci	Rci-E(Rc)	Rci-E(Rc)^2	Pi*(Rci-E(Rc)^2	Pi*[Rci-E(Rc)] [Mi-E(M)]
0.17	25.00%	4.17%	15.00%	0.022500		0.003750
0.17	5.00%	0.83%	-5.00%	0.002500	0.003750	-
0.17	-5.00%	-0.83%	-15.00%	0.022500		0.003750
0.17	15.00%	2.50%	5.00%	0.002500	0.000417	-
0.17	-10.00%	-1.67%	-20.00%	0.040000		0.005000
0.17	30.00%	5.00%	20.00%	0.040000	0.003750	0.005000
	E(J) =	10.00%		VAR(Rc)		COV(RC,RM)=0.017500
				=	0.000417	
				S.D.(Rc) =		
					0.006667	
					0.006667	
					14.7196%	

Prob.(pi)	Security M	Pi*mi	Mi-E(M)	(Mi-E(M) ^2	Pi*(Mi-E(M) ^2		
0.17	27.00%	4.50%	15.00%	0.022500	0.003750	Beta =	1.17
0.17	12.00%	2.00%	0.00%	-	-		
0.17	-3.00%	-0.50%	-15.00%	0.022500	0.003750		
0.17	12.00%	2.00%	0.00%	-	-		
0.17	-3.00%	-0.50%	-15.00%	0.022500	0,003750	CC =	0.97
0.17	27.00%	4.50%	15.00%	0.022500	0.003750		
	E(M) =	12.00%		VAR(M)=	0.015000		
				S.D.(M) =	12.2474%		

The equation of the SML: $R_j = 6.6\% + 5.4\% * B_j$

(b) The required return for Ujasiri: $R_u = 6.6\% + 5.4\% * 1.27 = 12.92\%$

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(c) The Company is overpriced in the market.

Reason: expected return is less than required return implying that compensation for its level of risk is inadequate.

QUESTION FOUR

(a) It can be observed that the proposed branch constitutes an extension of MBA-A-First-Bank of the Future Ltd"s existing business. This implies that the risk class of the new project is same as that ofthe existing business. Thus the appropriate discount rate to use in evaluating the project should be the bank"s weighted average cost of capital.

Cost of debt:: before tax – 6.25% + 2.75%	=	9%
After tax – 9%(1-.48)	=	4.68%
Cost of equity: as given	=	11%

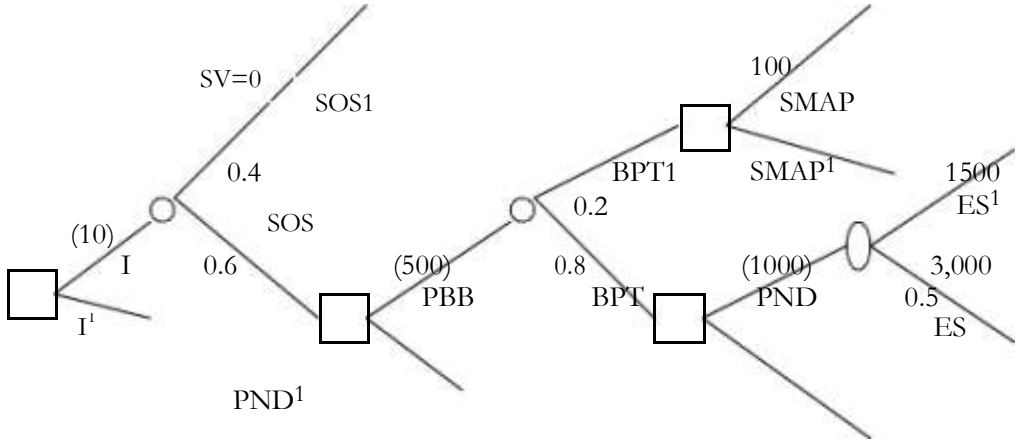
Weighted average cost of capital:

Capital component	**Component cost %**	**Weight %**	**Weighted cost %**
Debt	4.68	90	4.212
Equity	11.00	10	1.100
			5.312

(b) Computation of NPV:

Year	**Net cash flow Sh."000"**	**PVIF(5%,t)**	**PV of CF Sh."000"**
0	(40,000)	1.0000	(40,000)
1	2,000	0.9523	1,904.6
2	2,800	0.9070	2,539.6
3	3,600	0.8638	3,109.68
4	3,600	0.8227	2,961.72
5	4,000	0.7835	3,134
6 to infinite	4,000/0.5 = 80,000	0.7835	NPV = 34,329.6

The new branch should be opened since the NPV is positive.



PPB¹ JOINT PPOB		NPV Ksh.000	KSH.
0.40		(10)	(40)
0.12		(376.709)	(45.21)
0.24		(185.952)	(44.63)
0.24		(881.718)	(211.61)
	1.00		117.77

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Key

I	-	Invest	I^1	=	Do not invest
SOS	-	Stage one successful			
PPB	-	Produce prototype bicycles			
PND	-	Produce new design			
SMAP	-	Sale molds and prototypes			
ES	-	Economy strong			

Workings for NPV

2. $\frac{100,000}{1.122} - \frac{500,000}{1.12} - 10,000 = -376,709$

3. $\frac{1,500,000}{1.12^2} - \frac{1,000,000}{1.12^2} - \frac{500,000}{1.12} - 10,000 = -185,952$

4. $\frac{3,000,000}{1.12^3} - \frac{1,000,000}{1.12^2} - \frac{500,000}{1.12} - 10,000 = 881,718$

Projects Standard deviation of NPV

Pi	**NPB$_i$**	**E(NPV)**	NPV-ENPV	**P$_i$(NPV-ENPV)^2**
0.40	(10,000)	(4,000)	(127,779)	6,530,989,136
0.12	(376,709)	(45,205)	(494,488)	29,342,205,000
0.24	(185,952)	(44,628)	(303,731)	22,140,604,000
0.24	001,718	211,612	763,939	140,064,670,000

σ = 445,060

(c) CV = $\frac{\sigma}{m} = \frac{445,060}{117,779}$

= 3.78

The project has high stand alone risk since its CV far much exceeds the firm"s of between 1.0 and 2.0.

QUESTION FIVE

(a) Private Versus Public Financial Management

Financial management in government departments is different from financial management in an industrial or commercial company for some fairly obvious reasons.

(i) Government departments do not operate to make a profit and the objectives of a department or of a programme of spending cannot be expressed in terms of maximizing the return n capital employed.

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Government services are provided without the commercial pressure of competition. There are no competitive reasons for controlling costs, being efficient or, when services are charged for (such as medical prescriptions), keeping prices down.

Government departments have full-time professional civil servants and their managers, but decisions are also taken by politicians.

(iv) The government gets its money for spending from taxes, other sources of income and borrowing (such as issuing gilts) and the nature of its fund-raising differs substantially from fund-raising by companies.

The financial markets regard the government as a totally secure borrower, and so the government can usually borrow whatever it likes, provided it is prepared to pay a suitable rate of interest.

Central government borrowing is co-ordinated centrally by the Treasury and the Central Bank. Individual departments of government do not have to borrow funds themselves.

Local governments raise some taxes locally and can do some borrowing in the financial markets, but they also rely for some of their funds on central government.

Companies rely heavily on retained profits as a source of funds. Government departments cannot rely on any such source, because they do not make profits. Some government services must be paid for by customers, for example health and educational services, although the price that is charged might not cover the costs in full.

Since managing government is different from managing a company, a different framework is needed for planning and control. This is achieved by:

setting objectives for each department;
careful planning of public expenditure proposals;
emphasis on getting value for money.

(b) **The Capital Budgeting Process**

A number of terms are used interchangeably to refer to capital budgeting in public sector, e.g. public work planning, capital improvement planning, capital facility planning or capital outlay planning. Capital Budget in public sector refer to the legislative plan for proposed capital outlay and the means of financing them for the coming fiscal period. The capital planning and programming role of the chief executive guides the capital budgeting and programming process and makes recommendations to the legislature.

The guidelines for preparing and submitting the capital plan are determined by parliament which establishes the time frame for the program, project or activities, the extent of the citizen participation and the administrative responsibilities for the capital planning process. The authority to analyse the financial implication and impact of the capital program on the operating budget and to make recommendation on the financing approaches to assign to the department (Ministry of Finance) where a planning commission exists.

Benefits of Capital Budgeting in Public Sector

A number of important results flow from an effective plan and executed capital improvement program. These include:

- It forces communities to examine their goals and needs capabilities
- It promotes greater efficiency in the use of tax resources.
- It provides an important guide in and the growth and development of the community.
- It encourages government for public organizations to improve their administrative systems.

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- It is an important means for promoting Regional Corporation
- it facilitates and promotes sound financial management.
- It offers an effective way to replace or repair capital facilities.
- It enhances the government or the organisation"s opportunity to participate because of the manyprograms that the government maintain to aid in the planning and construction of infrastructure.

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