ADVANCED FINANCIAL MANAGEMENT

REVISION KIT - 2022

PASTPAPER QUESTIONS & ANSWERS

Harvest Training and Consultancy Uganda Ltd.

trainers & bookkeepers

CPA (U)

ADVANCED FINANCIAL MANAGEMENT (P16)

REVISION KIT

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- Ensures you are well prepared for your Professional exam,
- Provides you with great guidance on tackling questions,

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TEST PAPER 1
CPA (U) NOVEMBER 2017

Question 1

Medicines and Systems Limited (MSL) is a medium-sized Ugandan company specialising in the manufacture and distribution of pharmaceuticals. The company has experienced low growth over the last three years and its market share has shrunk from 35% to below 21% over the same period. The company has just appointed a new managing director (MD) with the aim of reviving the company's fortunes. The new MD has promised the Board some quick wins, among them, increasing the return on equity (ROE) from 14% to 22% over the next 3 years of his 4-year contract.

While addressing the Board at their first meeting after his appointment, the MD said, "… I will eliminate inefficiencies in operations, ensure that new projects yield the highest return possible and grow MSL to a level that will enable us achieve economies of scale. I will for sure invest in all projects that will generate a return above the cost of equity, and the sky will be the limit for us". The Board has endorsed this ROE target, and also agreed to initiate an initial public offering (IPO) process once the return on equity stabilises above 20%.

The MD has subsequently tasked the finance manager to give her technical advice on selected initiatives and projects under consideration to support her medium term agenda. As part of the assignment, the finance manager is also evaluating some potential challenges such as capital rationing, and designing appropriate solutions. Some of the initiatives and projects include the following:

1. Truck replacement cycle

MSL maintains a fleet of trucks in their value chain, for which the MD would want a replacement cycle that maximizes value for MSL. Currently, each truck costs approximately Shs 420 million. The annual maintenance cost of each truck is estimated to be Shs 110 million, Shs 125 million, Shs 145 million and Shs 170 million for the first up to the fourth year of ownership respectively. The residual value of each truck is projected to be Shs 200 million after 3 years and Shs 130 million after 4 years.

2. Conveyor-system replacement cycle

As part of the quick-wins strategies, the MD has been given data on two alternative systems which have been code-named *Aces* and *Bays*. These alternative systems relate to periodic overhaul of the manufacturing conveyor system, every 3 or 4 years respectively. The *Aces* system requires an investment of Shs 600 million and

will generate savings worth Shs 250 million, Shs 300 million, and Shs 360 million for the first, second and third years before being overhauled again.

The *Bays* system requires Shs 500 million in initial investment; it is estimated that it will generate savings of Shs 180million, Shs 210 million, Shs 230 million and Shs 250 million in the first, second, third and fourth years of operation respectively before being overhauled. Again, the MD needs to identify a better option among *Aces* and *Bays*, in order to boost the value of the company.

3. Investment of Shs 5 billion

The company is also projected to have an extra Shs 5 billion which will be available for investment in an appropriate combination of flagship projects at the start of the coming financial year. The cash flows and net present values of these divisible projects have been estimated for projects P, Q, R and S, as indicated in the table below.

Project	Year 0	Year 1	Year 2	Year 3	NPV
P	(3,000)	1,500	1,250	1,250	121
Q	(1,500)	(1,000)	1,250	2,250	103
R	(2,000)	(2,500)	3,000	3,400	410
S	(2,500)	400	1,400	1,800	TBD

TBD = to be determined

The finance manager is yet to conclude the NPV computation for project S which has two unique features besides the cash flows reflected in the table above, namely:

(i) It is estimated that 20% of the initial investment will be recovered at the end of the project in year 3.
(ii) The project requires a boost in working capital at the end of the first and second years of Shs 100 million each, all of which shall be recovered at the end of the project.

MSL spent a total of Shs 360 million on research and development of these four projects; and the management accountant is of the view that this cost should be shared equally among the projects and amortised over the life of these projects.

4. Increasing the number of funding sources

The MD has been informed that the company's cost of capital is 14% per year. She has indicated that this is relatively high, given her experience with international financial markets. The MD has particularly referred to the 6-months USD LIBOR which was below 1.5% per annum for the whole of year 2016. In her view, the

company's gearing is too low to be optimal and the alternative sources of finance used by MSL are still very few.

The MD's targeted quick wins in this area of funding include:

- Increasing the gearing ratio by at least 10% per annum over the next 3 years;
- Widening the financing options by securing Islamic finance in local currency.

Assuming the role of a finance manager at MSL;

Required:

(a) Discuss the causes and implications of capital rationing to MSL. **(6 marks)**

(b) Advise the MD about the;

(i) most appropriate truck replacement cycle. **(9 marks)**

(ii) selection between Aces and Bays systems. **(9 marks)**

(c) Discuss the limitations of your analysis in (b) above. **(6 marks)**

(d) Advise the MD on the best combination of investments among P, Q, R, and S. **(10 marks)**

(e) Discuss the major principles of interest free and profit sharing in Islamic finance and advise the MD on the limitations that MSL may face in accessing Islamic finance locally. **(10 marks)**

(Total 50 marks)

Question 2

Woodhouse Limited (WL) is a Ugandan based construction company, and has been in existence for over 15 years. Having been tipped to play a leading role in Uganda's prospective oil and gas sector, the company is trying to position itself to exploit all potential opportunities along the oil value chain. In order to get maximum advantages in its area of specialization, it is estimated that WL should double its capital capacity over the next two years. The company's total assets amounted to Shs 185 billion as at 31 December 2016, with a debt to equity ratio of 120%.

The company recently convened a consultative workshop involving the firm's key stakeholders, with the aim of consolidating the thought process on capital requirements and designing strategic future dealings with the capital markets. In his keynote address at the workshop, the Minister of Finance stated that "… the role of capital markets in the development of the Ugandan economy cannot be

underestimated; and indeed, the state of development of our capital markets will determine whether or not Uganda achieves the middle-income status over the next four years".

The finance director of WL in his presentation to the stakeholders, emphasized, "I will focus on minimizing the overall cost of capital of WL thereby maximising shareholder value at all times during and after this growth. I am confident that many financing options are available to WL, and I am sure of success in this regard".

You have been approached as a finance consultant on matters highlighted in the case above.

Required:

(a) Evaluate the statement by the Minister of Finance in his keynote address. **(8 marks)**

(b) Analyse the:

(i) factors that WL should consider when selecting an appropriate source of finance for the planned expansion. **(8 marks)**

(ii) statement by the director of finance and propose at least three strategies that would enable WL achieve the stated objective if it was appropriate. **(9 marks)**

(Total 25 marks)

Question 3

Tough Steel Limited (TSL) is a manufacturer of steel products and is listed on the Kikuubo Stock Exchange. The company reported a profit after tax (PAT) of Shs 8.4 billion for the year ended 30 June, 2017. The company's market capitalisation is currently estimated at Shs 115 billion.

TSL is considering various investment opportunities, modes of financing them, and an appropriate dividend policy that would propel sustainable growth in share price. The company has been warned that without new investments, the profit after tax will not grow.

The following profit retention levels, growth and expected return figures are available to support their decision making process:

Option	Profit Retention (%)	Growth in Earnings (%)	expected Return (%)
A	0	0	15
B	30	6	16
C	50	8	18

Required:

Acting in the capacity of a finance manager at TSL;

(a) Advise on the:

(i) practical considerations that TSL should make before declaring a dividend for the year. **(5 marks)**

(ii) most appropriate dividend policy for TSL basing on the data on profit retention and growth. **(7 marks)**

(b) Discuss the:

(i) assumptions you may have used in your answer to (a) above. **(5 marks)**

(ii) applicability of the residual, traditional and the irrelevancy theories of dividend policy to TSL's situation. **(8 marks**

(Total 25 marks)

Question 4

H-Partners Limited (HPL) is an investment club formed five years ago. HPL comprises of mainly young professionals. They are currently discussing options available for the investment of their savings of Shs 1.0 billion.

Some of the wide-ranging views of the honorary treasurer and of the secretary are summarized below:

The treasurer has said, "We need to select one portfolio among H and P. They fit within our available funds, and most importantly, the correlation between the returns of the individual investments is negligible. You are aware that the market return is currently at 20% while the treasury bill rates are averaging 12%". The information available on the two portfolios H and P is as follows:

Portfolio H			
Investment	Shs 'million'	Expected Return (%)	Beta
H-1	150	20	0.6
H-2	350	22	1.1
H-3	300	24	1.2
H-4	200	26	1.3

Portfolio P			
Investment	Shs 'million'	Expected Return (%)	Beta
P-1	200	18	0.9
P-2	300	20	1.1
P-3	500	22	1.2

The secretary is, on the other hand, suggesting that "… we do not need to go into the complications of the capital assets pricing model (CAPM) with all its limitations.

I have information that we can set up a Shs 1.5 billion project with assured cash flows of Shs 260 million per annum in perpetuity. The shortfall of Shs 500 million can be raised through an irredeemable 13% debenture. The applicable all-equity cost of capital is 18%, while the corporation tax rate is 30%. My estimate of adjusted present value indicates that this is an investment we can take on as a club".

Required:

(a) Discuss the relevance of correlation of returns in portfolio formation. **(4 marks)**

(b) Advise HPL on:

(i) which portfolio to select between H and P and discuss the limitations of CAPM as applicable to this analysis. **(13 marks)**

(ii) the acceptability of the project fronted by the secretary based on its adjusted present value and indicate any reservations you may have on the project **(8 marks)**

(Total 25 marks)

Question 5

Myar Innovations Limited (MIL), a listed company, is a manufacturer of agricultural equipment mainly used in subsistence farming in Uganda. The company has been in operation since 1992 and employs close to 200 workers in its manufacturing establishment located in central Uganda. The company was experiencing consistent growth until about four years ago, when competition significantly increased mainly from similar products directly imported from South Asian markets.

In order to remain competitive, MIL borrowed heavily to finance research and development into newer efficient methods of production, and financial market actors now indicate that they cannot lend the company anymore. With a high gearing and reducing market share, the company's share price is trading at Shs 650 per share from as high as Shs 2,900 about three years ago. The Board is, therefore, under pressure to restructure or dissolve the company.

MIL's summary statement of comprehensive income for the recently ended financial year is as follows:

	Shs 'million'
Sales revenue	153,920
Expenses - less depreciation, interest and tax	(145,108)
Tax allowable depreciation	(5,920)
Finance costs (interest)	(4,736)
Taxation	-
Profit /(loss) after tax	(1,844)

Some more information is available in regard to this potential restructuring:

(a) The existing ordinary shares will be replaced by 30 million ordinary shares each with a nominal value of Shs 1,000 to be paid for in cash. Bond holders will be replaced with 80 million ordinary shares, each at Shs 1,000, for which they will pay Shs 24 million in cash.

The directors and top management of the new company will get 4 million share options for an exercise price of Shs 1,200 expiring in 4 years.

(b) A bank overdraft, currently standing at Shs 19.5 billion will be converted into a 10-year secured loan at an interest rate of 14.5% per annum;

(c) As part of the restructuring programme, a tax allowable investment of Shs 12 billion in machinery and equipment will be required. This investment will have the effect of increasing sales revenue by 12% in year 1, without increasing operating expenses. Thereafter, sales will normalize at the new level for the foreseeable future.

(d) In order to maintain the level of operations, an annual reinvestment equivalent to the tax allowable depreciation of 20% will be needed per annum. Income tax is payable at a rate of 30%, and it should be assumed that it is paid in the year it is incurred.

(e) As a result of the above changes, the company's cost of capital will reduce by 350 basis points from the current level of 14%.

Required:

(a) Advise the management of MIL on the factors that they should watch out for or monitor in order to avoid financial distress.

(5 marks)

(b) Estimate the value of MIL in case the restructuring proposal is adopted.

(9 marks)

(c) Evaluate the acceptability of the restructuring process to any **three** of MIL stakeholders .

(6 marks)

(d) Discuss any **five** possible solutions to financial distress at MIL.

(5 marks)

(Total 25 marks)

TEST PAPER 2
CPA (U) JUNE 2018

Question 1

The board of directors of Kampala Bakers Company Limited (KABACO), a listed company on the Uganda Securities Exchange (USE), is considering expanding its operations to meet the requirements of shareholders and compete with similar companies in the East African region. KABACO has been in the confectionery industry for several years with its main product being the banana pancake, which is very popular with most of the working class and students.

The managing director (MD) has been in discussions with several research companies about the issue of the proposed use of orange sweet potatoes in baking pancakes. The new product would be sold on the basis of having natural sugars and the large amounts of vitamin A - all naturally present in the orange sweet potatoes. The MD is excited about the wonders of the new product and the projected savings on sugar required for baking.

Furthermore, the MD is planning to introduce a new health drink called *Hibiscus,* which he believes shall be quite appealing to health-cautious individuals.

However, some senior managers have warned the MD about this proposed diversification and are of the view that they should stick to the confectionery business rather than compete with the likes of Jack and Jerry Uganda Ltd (J & J Ltd), which is even a listed company that has for long been in this beverages sector. The MD is not convinced by the managers and plans to present the two projects anyway to the Board which will be supported by analytical information from the finance department.

Based on the currently available information, the price of a kilogram of these pancakes is projected to sell at Shs 2,500 while that of hibiscus is projected to be Shs 2,000 per litre for over a period of four years. The initial investment required is estimated at Shs 1,500 million and Shs 800 million respectively. The total costs associated with the two projects are expected to be stable at 90% for the pancakes and 85% for the Hibiscus of expected revenue.

With the coming on board of these new projects, the company shall also be looking for appropriate sources of finance that might be available to KABACO to meet the new financing requirements. Initial consultations by the Board Chairman have suggested euromarkets, the stock market and Islamic financing.

The following are extracts from the analysis information provided by the finance department as of May, 2018.

KABACO

Equity:	Book value Shs 'million'	Market value Shs 'million'
50 million ordinary shares	141	215
Debt:		
10% debentures (May, 2022)	80	85

(J & J Ltd):

Equity:	Book value Shs 'million'	Market value Shs 'million'
60 million ordinary shares	166	231
Debt	65	60

Other relevant information:

Beta value of KABACO (asset beta)	1.1
Beta value of J & J Ltd	0.9
Market return	14%
Risk-free rate	6%
Current inflation rate	4%
Corporation tax rate	30%

Project sales:

	Year 1	Year 2	Year 3	Year 4
Vitamin A pancakes (million kg)	2	3	3	4
Hibiscus (million litres)	1	1.5	1	2

Required:

(a) Determine an appropriate cost of capital that KABACO can use to evaluate the viability of the two projects.

(11 marks)

(b) Discuss the appropriateness of the assumptions you may have used in (a) above and any challenges.

(7 marks)

(c) Advise the Board of KABACO on which project to undertake based on the following methods of investment appraisal:

(i) Payback period. **(5 marks)**

(ii) Net present value. **(6 marks)**

(d) Advise the Board about the sensitivity of the projects to initial investment and state any reservations you may have on this analysis.

(6 marks)

(e) Assess the drawbacks and usefulness of the payback period as a method of investment appraisal to be applied by KABACO.

(5 marks)

(f) Advise the Chairman of KABACO:

(i) on the usefulness of borrowing from Euromarkets **(5 marks)**

(ii) as to why he should consider Islamic Financing as a viable option.

(5 marks)

(g) Examine the role of a merchant bank in the sourcing of finances from the stock market highlighting the matters that would make its advice attractive to KABACO.

(5 marks)

(Total 50 marks)

Question 2

ROCO Construction Ltd, a listed company, has suffered heavy losses in the last four years due to several reasons, most of which have been attributed to the current harsh economic environment. The current managers are so concerned about the state of affairs that they plan to hire a consultant to help them in sorting out these problems.

During the current year, sales targets have been particularly difficult to achieve and stock levels are quite high. Trade payables have not been settled for the last two years which is worrying the suppliers. After the meeting with the consultants and other stakeholders, the preference shareholders have demanded a scheme of reconstruction or liquidation of the company. The finance committee of the Board has agreed with preference shareholders after several consultations and the following have been agreed upon:

1. The existing 70 million preference shares are to be exchanged for a new issue of 70 million ordinary shares of Shs 1 each.
2. The profit and loss account is to be written off.
3. The bank overdraft is to be repaid.
4. The Committee expects that due to the refinancing, operating profits will be earned at the rate of Shs 550 million per annum after depreciation but before tax,
5. Corporation tax is at 30%

The following statement of financial position for ROCO Construction Ltd for the year ended 31 December, 2017 has been provided:

	Shs '000'	Shs '000'
Non-current assets:		
Buildings		281,000
Current assets:		
Inventory	190,939	
Current liabilities:		
Trade payables	205,047	
Overdraft	36,713	
	241,760	
Net current liabilities		(50,821)
		230,179
Ordinary shares Shs 1 each		200,000
5% cumulative preference shares Shs 1 each		70,000
Profit /(loss)		(39,821)
		230,179

The market values are expected to be based on the recent valuation report.

Value of assets:

	Shs '000'
Non-current assets	190,000
Inventory	113,623
Assets available	303,623

Required:

Advise the:

(a) ordinary shareholders and preference shareholders on whether they should support the reconstruction.

(11 marks)

(b) management of ROCO Construction Ltd on the types of restructuring that may be available to them.

(6 marks)

(c) management of ROCO Construction Ltd on ways in which restructuring can enhance shareholder value.

(8 marks)
(Total 25 marks)

Questions 3

The directors of Jamuka Uganda Ltd (JAUL) are considering whether to accept one of the two major new investment opportunities in projects Q and P. Each of these projects would require an immediate outlay of Shs 10 billion. The directors have just received a report from one of their leading consultants which emphasizes that the returns from existing activities and from the new one-year projects will depend largely on the economic environment that prevails during the coming year.

Financial information about the proposed and existing projects with probabilities of the economic environment that may prevail is summarised below.

Economic environment	A	B	C
Probability:	0.30	0.40	0.30
Returns/ value at year-end:	Shs 'billion'	Shs 'billion'	Shs 'billion'
Project Q	12.50	12.50	9.50
Project P	10.00	11.75	13.00
Aggregate returns (value at year-end) from existing portfolio of projects	90.0	120.0	130.0

The company has a current market value of Shs 100 billion. The directors of JAUL believe that the risk and returns per shilling of the market value of existing activities are similar to those of the stock market as a whole, including their dependence on whichever economic environment that prevails. The current rate of interest on short-dated government securities is 10% per annum.

Required:

(a) Evaluate the risks and returns of the two projects, and advise JAUL on the most favourable project to undertake.

(15 marks)

(b) Discuss the principles you have used in arriving at your recommendation in (a) above

(10 marks)

(Total 25 marks)

Question 4

The management of Kampala Knitters Ltd (KKL) is in the process of acquiring new equipment for the manufacture of polo shirts in the medium to long-term. They are, therefore, preparing to hold their money in investments that will store their value securely; and a variety of proposals have been considered and shared with the members of board of directors.

The chairman of the board of directors recently attended a meeting where warrants and traded options were extensively discussed. Based on this new information, he suggests that debt instruments accompanied by either attached warrants or traded options might be attractive and also have substantial benefits. However, the finance director is of the view that they should put more time in reviewing KKL's potential to invest in long-term bonds. Currently, there are two bonds (A and B) available on the securities exchange that KKL would need to consider:

Security A: The market value of a Shs 100 million per value bond carrying a coupon rate of 14% which is expected to mature in 5 years is Shs 105 million.

Security B: A Shs 100 million par value bond bears a coupon rate of 14 %; matures after 5 years; interest is paid semi-annually and the required rate of return is 16%.

Required:

(a) Discuss the viability of the chairman's suggestion in KKL's context. **(8 marks)**

(b) Estimate the:

(i) yield to maturity of Security A. **(7 marks)**

(ii) value of Security B. **(3 marks)**

(c) Advise the management of KKL on the factors they should consider before investing in bonds. **(7 marks)**

(Total 25 marks)

Question 5

Busoga Cobalt Limited (BCL), a listed company, has been in the mining sector for several years operating in northeastern Uganda. The managers of BCL are having a meeting with their bankers in relation to a new opportunity in cardboard manufacturing – especially for the export market. One of the members, who is a retired finance manager, has proposed the use of a mixture of financing by internal funds, a rights issue, convertible loan stock and long-term loans. Another member, however, has a different view, and is proposing issuing new shares and buying them back when the investment yields substantial cash flows instead of paying dividends.

Other available information shows that BCL is not sure whether to use the capital asset pricing model (CAPM) or arbitrage pricing theory to determine the cost of capital. However, they all agree to the use of the adjusted present value (APV) technique to evaluate projects when all the relevant information is availed to them. The Ministry of Finance has, on the other hand, pledged a subsidised loan to BCL because of the perceived strategic importance of the new business line; this will cost 2% below the company's normal cost of long-term debt finance.

Required:

Discuss the:

(a) circumstances under which CAPM or arbitrage pricing theory might be better methods of determining the cost of capital for BCL.

(8 marks)

(b) main features of share repurchase (buy-back) and why BCL might use it. Include in your discussion comments on the possible effects on the share price of the repurchase in comparison to payment of dividends.

(7 marks)

(c) circumstances under which APV might be a better method of evaluating a capital investment than the net present value technique.

(4 marks)

(d) key features of a convertible loan stock.

(6 marks)

(Total 25 marks)

TEST PAPER 3
CPA (U) AUGUST 2018

Question 1

Bamasaba Uganda Ltd (BUL), a Ugandan based company, is considering whether to start manufacturing in Kenya. A suitable local factory has been identified which would cost KShs 2.8 billion including all machinery and fittings. The project is expected to last five years and then BUL would sell the machinery for an estimated KShs 1.2 billion. The historical cost of the machinery is KShs 1.5 billion. The market values of other assets are likely to increase in line with inflation in Kenya. BUL may deduct tax allowable depreciation on machinery on the value of KShs 1.5 billion on a straight-line basis at a rate of 10% per annum. No tax allowable depreciation is available on other assets.

At the start of each year, the factory would require working capital equal to 10% of that year's sales revenues.

Production schedule:

Annual production is projected at 140,000 units and all units produced would be sold. Each unit from the Uganda parent which is sold at a fixed price of UShs 20,000 contributes UShs 5,000 to the parent's cash flows.

Kenya costs and prices:

Variable costs	KShs 4, 800 per unit in year 1.
Fixed costs	KShs 140 million in year 1
Selling price	KShs 12,000 per unit in year 1

Prices and costs (except for the Ugandan parent) are expected to increase in line with inflation in Kenya.

Corporation tax rate in Uganda and Kenya is 30%, payable one year in arrears. A bilateral tax treaty exists between Uganda and Kenya which allows tax paid in Kenya to be offset against any Uganda tax liability.

Given the prevailing political situation in Kenya, inflation is expected to be 8% per annum for the next five years. The Kenya Shilling is expected to depreciate by 4% per annum against the Uganda shilling.

The current spot UShs / KShs: 34.00-36.00

BUL believes the appropriate risk adjusted discount rate for the project is 17%.

BUL's Business Development Manager has informed the Board that once they take on the investment, the company will face many new risks, challenges and opportunities arising from international factors, most of which will have an influence on its cash flows.

The company is exploring a number of financing options including the Eurobond, Islamic finance and term loan. BUL submitted a financing proposal to Salam Bank Ltd which has agreed to give BUL a fixed-rate 5-year term loan for the full KShs 2,800 million at an interest rate of 5% below the prime lending rate. At the conclusion of the meeting between Salam Bank Ltd and BUL Board of Directors, the President of Salam Bank commented that working together would be like old times when he and BUL's Chief Executive Officer (CEO) used to run a business together.

You are a certified public accountant and have been earmarked as a key advisor on a number of concerns affecting BUL.

Required:

(a) Evaluate the proposed investment and recommend whether or not BUL should go ahead with the project. State clearly any assumptions you make and work out your calculations in millions rounded to nearest one million.

(25 marks)

(b) Advise BUL on the main risks arising from international factors which may influence cash-flows.

(8 marks)

(c) Assuming that there are limits on funds that can be repatriated from Kenya, discuss the steps BUL could take to get around this, if it set up a subsidiary in Kenya.

(6 marks)

(d) Advise BUL on the advantages and drawbacks of using Islamic finance and the Eurobonds.

(8 marks)

(e) Discuss the possible ethical issues likely to arise from the relationship between the Salam Bank President and BUL's CEO, with respect to the proposed term loan.

(3 marks)

(Total 50 marks)

Question 2

Chamuka (U) Ltd (CUL) is planning to invest in a new production plant costing Shs 30 billion. The following is financial data related to the investment project:

	Shs 'million'
Revenue/ turnover	7,500
Variable cost of sales	3,300
Other operating expenses	960

CUL plans to use debt capital to finance the project through a fresh issue of 6 % 5 year debentures. CUL's recent summarised accounts before taking into account the effects of the new investment are set out below:

Statement of financial position as at 31 December, 2017

	Shs 'million'	Shs 'million'
Non-current assets:		
Property, plant & equipment	60,000	
Goodwill	15,000	75,000
Current assets:		
Inventories	12,000	
Trade receivables	18,000	30,000
Total assets		105,000
Equity & liabilities:		
Equity:		
Share capital		48,000
Retained earnings		24,000
Total equity		72,000
Non-current liabilities:		
10% debentures		24,000
Payables falling due within one year:		
Trade and other payables		6,000
Short-term borrowings		3,000
Total liabilities		33,000
Total equity & liabilities		105,000

Statement of profit or loss for the period ended 31 December, 2017

	Shs 'million'
Sales	48,000
Cost of sales	(28,800)
Gross profit	19,200
Operating expenses (40% variable)	(8,400)
Operating profit	10,800
Financing costs	(2,400)
Profit before tax	8,400
Income tax (30%)	(2,520)
Profit for the period	5,880
Dividends (ordinary dividends)	(2,940)
Retained earnings	2,940

Additional information:

(i) The company does not intend to allow its financial gearing level measured by prior charge capital as a proportion of total capital employed exceed 50%.
(ii) Average industry times interest earned ratio: 3 times

Required:

(a) Analyse and discuss the implications of the new investment on:
  (i) times interest earned ratio. **(5 marks)**
  (ii) operating leverage (OL). **(5 marks)**
  (iii) financial Leverage (FL). **(5 marks)**

Hint: ($OL = \frac{Contribution}{\text{Pr}\,ofit\ Before\ Interest\ \&\ Tax}$)

(b) Discuss the circumstances under which debt finance may be more appropriate for financing growth.

(10 marks)
(Total 25 marks)

Question 3

Two clothing companies, Fashions (U) Ltd (FUL) and Designers (U) Ltd (DUL) have enjoyed a steady growth in recent years using an internal growth strategy. FUL is now seeking to merge with other companies to speed up its growth drive. It has identified DUL as a suitable candidate for merger. Both companies have the same level of risk.

DUL produces high quality designer clothes, with which it has earned several awards. The company has recorded considerable profits in the past, but its

output has dwindled over the past two years due to increasing labour costs. Labour unions have pressured policy makers into amending labour regulations, particularly those relating to pension and minimum wage, to provide more benefits and protection for workers.

The directors of FUL believe that production and profitability of DUL will be enhanced if its production process is mechanised.

The two companies have agreed to merge and form Smart Collections Uganda Ltd (SCUL). It has been agreed that DUL's shareholders will accept four shares in FUL for each share they hold. Below is a summary of financial data for the two companies immediately before merger*:*

	FUL	DUL
Number of shares (million)	120	30
Annual earnings (Shs 'million')	30.0	17.4
Price-earnings ratio	10	12

Post-merger annual earnings of the merged company are expected to be 8% higher than the sum of the earnings of each of the companies before the merger due to economies of scale and other synergies. The market is expected to apply a P/E ratio of 11 to SCUL.

SCUL management has approached you as a financial analyst to get a deeper understanding of the situation at hand and needs guidance on a number of issues.

Required:

(a) Analyse the extent to which the shareholders of DUL will benefit from the proposed merger.

(13 marks)

(b) Advise the shareholders of DUL and FUL on the:

(i) reasons why mergers are not always successful.

(6 marks)

(ii) major considerations that the predator company has to take into account when deciding on how to finance a proposed takeover.

(6 marks)

(Total 25 marks)

Question 4

A group of young graduates have formed an investment club and they have just acquired a loan from the Youth Venture Capital Fund under the Ministry of Gender, Labour and Social Development. They are considering two projects; a car washing bay (W) and poultry farming (P). The returns from these two projects vary depending on the state of economic growth. They are as follows:

		Returns (%) from	
State of the economy	Probability	W	P
Rapid	0.15	45	18
Stable	0.70	20	17
Slow	0.15	-10	16

Since there appears to be a degree of inverse correlation between demand and therefore net cashflows from the two projects it seems sensible to consider diversified development.

Required:

(a) Evaluate the two alternative investments and advise the group of young graduates.

(15 marks)

(b) Discuss the limitations of portfolio analysis. **(10 marks)**

(Total 25 marks)

Question 5

Mbale Foam Ltd (MFL), is an unlisted company and has been manufacturing mattresses and other foam products since 2010. The company is considering a new project which requires Shs 7.5 billion investment in capital expenditure and net working capital.

The Finance Director, while presenting a paper to the Board of Directors on the relative costs of equity and debt as sources of finance commented *"the risk faced by each class of investor drives the required return of that investor and the required return drives the firm's cost of each source of finance"*. He went on to explain that one of the most important sustainability factors requisite for the accelerated development of an economy is the existence of a dynamic financial market. Financial markets can be found in nearly every nation in the world. Some are very small, with only a few participants, while others, like the New York Stock Exchange (NYSE) and the foreign exchange markets, trade trillions of dollars daily.

Required:

(a) Prepare a presentation to the Board of Directors of MFL, discussing the relationship between the relative costs of sources of finance and the creditor hierarchy.

(12 marks)

(b) Discuss the relevance of the following markets in the economic development of Uganda:

(i) Stock markets. **(6 marks)**

(ii) Inter-bank markets. **(3 marks)**

(iii) Debt markets. **(4 marks)**

(Total 25 marks)

TEST PAPER 4
CPA (U) NOVEMBER 2018

Question 1

AGREME Ltd (AGREME) is a leading supplier of water in Uganda and is listed on the Kampala Securities Exchange. The company's customers have been largely domestic users with only few households using it for irrigation purposes on a small scale. However, with increasing unpredictable and unfavourable climate changes, it has become very difficult in the East African region to have a substantial harvest without applying irrigation methods. The changes in climate have also forced the governments to rethink their agricultural policies with emphasis on supplementing the current rain-fed systems. The Board of AGREME has seen this as an opportunity and this has informed several meetings to consider investing in a new water plant.

Two alternatives under consideration by the Board are: Gravity Flow System (GFS) and Dam Holdings System (DHS). The Board requires a favourable environmental impact assessment report as a basis for embarking on the implementation phase as scheduled. Mr. Onen, the finance director, is of the view that AGREME should pay a fee to the technical people at Central Environmental Management Authority (CEMA) to hasten the process. This view is still being considered by other board members.

GFS has an initial cost of Shs 13 billion while DHS has an initial cost of Shs 18 billion with net cash flows being 20% higher than those of GFS. The company's risk adjusted rate of return used for investments in this sector is 14% and the risk free rate is 4%. Certainty equivalents and net cash flows (in Shs 'million') relative to GFS have been ascertained as follows.

Year	1	2	3	4	5	6	7
Certainty equivalents	0.90	0.85	0.80	0.75	0.70	0.65	0.60
Net cash flows	8,000	7,000	7,000	5,000	5,000	5,000	5,000

Whichever alternative is chosen, AGREME would need hydraulic cranes which will be used in cleaning water reservoirs in different water stations. The Board is not sure whether to purchase its own cranes out right or lease them from a prominent tower crane leasing company.

New cranes are expected to result in operating savings of Shs 50 million per annum and have an economic useful life of five years. The company's after tax cost of capital for the investment is estimated at 15% and operating cash flows are taxed at a rate of 30% payable one year in arrears. The company is considering whether to fund the acquisition of the cranes with a five-year bank

loan, at an annual interest rate of 13% with the principal repayable at the end of the five year period. As an option, the cranes could be acquired using a finance lease at a cost of Shs 28 million per annum for five years, payable in advance. The cranes are estimated to have no resale value at the end of the five years.

As an alternative financing mechanism, the executive director is of the view that the company should take advantage of the Islamic banking products or use international markets to ably finance the new ventures.

Additional information:

1. Due to the current tax position, the company is unable to utilise any capital allowances on the purchase of the cranes until year one.
2. The total cost of the cranes is currently estimated at Shs 120 million.
3. Writing down allowances of 25% per annum are available to AGREME on a reducing balance basis.

Required:

(a) Prepare a report, with relevant computations, to the directors of AGREME:

(i) advising them on which alternative to adopt. **(12 marks**

(ii) recommending, with reasons, whether AGREME should acquire the cranes by lease or by outright purchase.

(8 marks)

(iii) Advising on the method of acquisition, whether to purchase outright or lease.

(8 marks)

(b) Advise the board of AGREME on;

(i) the advantages of international markets as a source of finance and any likely problems faced by using them.

(8 marks)

(ii) how the cranes can be acquired using Ijarah.

(6 marks)

(c) Comment on the finance director's view of paying a fee to technical people at CEMA and how AGREME can mitigate such actions.

(8 marks)

(Total 50 marks)

Question 2

Green Villas Limited (GVL) is a 10-year old construction company based in Ntinda, a Kampala suburb. The company's main business is in real estate and tourism and its major market has been:

1. Foreigners from Europe, usually a family in their retirement seeking to relocate to a warmer place or to have a second home for holidays.
2. Middle aged single foreigners looking for a second home close to the beach.
3. Ugandan well-to-do families from the diaspora looking for a second home although this group constitutes only a small percentage.

The company is considering two projects: a luxury beach resort, suitable for young families (Project L) and a mid-range bamboo cottages project (Project M) suitable for families at retirement age seeking to relocate to a warmer place. An analysis of the market is even more interesting because it reveals that the success of the project will depend on weather conditions (seasons) which will influence the demand for accommodation. Available demand for beach accommodation and cottages varies with seasons.

The directors of GVL are considering a diversified development since most of them are risk averse.

The table below shows projected annual cash flows for various seasons.

Season	Probability	Project L	Project M
		Shs 'million'	Shs 'million'
Winter	0.2	5,000	5,000
Autumn	0.3	5,000	7,500
Summer	0.4	10,000	5,000
Spring	0.1	10,000	7,500

Required:

(a) Advise the directors of GVL on:

(i) whether they should invest in the two real estate tourism projects (Show all computations, if any). **(16 marks)**

(ii) the benefits and risks associated with holding a well-diversified portfolio. **(6 marks)**

(b) Discuss the assumptions at the heart of financial theory, that investors are 'risk averse'.

(3 marks)

(Total 25 marks)

Question 3

Uganda Bus Operators Transport Ltd (UBOTL) has a wide range of investments and is experiencing considerable financial difficulties. The directors of (UBOTL) have therefore decided to concentrate the company's activities on three core areas: bus services on upcountry routes; city transport; and tourism for sightseeing. As a result of this decision, UBOTL has offered to sell one of its major assets namely, its regional sports centre at Shs 35 billion free of debt.

The existing managers of the sports centre are attempting to purchase the sports centre through a leveraged management buy-out and would form a new unquoted company – Villa Uganda Limited. The managers have approached several financiers, among them Pinkland Bank Ltd.

Pinkland Bank Ltd is prepared to offer a floating rate loan of Shs 20 billion to the management team at a starting interest rate of 13% (being the Central Bank rate of 10% plus a risk margin of 3%. This loan would be for a period of seven years, repayable upon maturity and would be secured against the sports centre's properties.

One condition of the Pinkland Bank Ltd's loan is that interest coverage ratio shall not be below four times at the end of the first four years. If this condition is not met, the bank has a right to call in its loan at one month's notice. There is also information that Villa Uganda Limited would be able to purchase a four year interest cap at 15% for its loan from Pinkland Bank Ltd for an upfront premium of Shs 0.8 billion.

A local microfinance company, Pearl Partners Ltd is also willing to provide up to Shs 10 billion in form of unsecured debt with attached warrants (Mezzanine finance). This loan would be for a five-year period, with principal repayable in equal annual installments and has a fixed interest rate of 18% per annum.

The warrants would allow Pearl Partners Ltd to purchase 10 Villa Uganda Limited shares at a price of Shs 1,000 each for every Shs 100,000 of initial debt provided, any time after two years from the date the loan is agreed. UBOTL, as a condition of sale, proposes to subscribe to an initial 20% equity holding in the company amounting to Shs 1 billion and would repay all the debts of the sports centre prior to the sale. The managers will provide the remaining required funding by way of equity. This would be in form of new ordinary shares issued at the par value of Shs 500 per share.

Forecasts of earnings before interest and tax (EBIT), in Shs 'million' for the sports centre for the next four years following the buyout are as follows:

Year	1	2	3	4
EBIT	13,000	14,000	19,000	20,000

Corporation tax is charged at 30%. Dividends are expected not to be more that 10% of profits for the first four years. Management has forecast that the value of equity capital is likely to increase by approximately 15% per annum for the next four years.

Required:

(a) Prepare a report, with relevant computations to the managers of the proposed Villa Uganda Limited:

(i) discussing the benefits and drawbacks of the proposed financing mix for the management buyout.

(10 marks)

(ii) evaluating management's forecast that the value of equity capital will increase by 15% per annum.

(10 marks)

(b) As a financial analyst at Pearl Partners Ltd, discuss any **five** key information aspects you require from the management team buy-out for a Shs 10 billion loan approval.

(5 marks)
(Total 25 marks)

Question 4

Bushkit Uganda Limited (BUL) is a listed company and has in the recent past, followed a policy of paying out a steadily increasing dividend per share as shown below:

Year	Earnings per share (EPS) (Shs)	Net Dividend per share (Shs)	Dividend cover
2013	11.80	5.0	2.4
2014	12.50	5.5	2.3
2015	14.60	6.0	2.4
2016	13.50	6.5	2.1
2017	16.00	7.3	2.2

BUL has only just made the 2017 dividend payment and so the shares are quoted ex-dividend. The company is planning a major change in strategy whereby greater financing will be funded with internal funds. This has necessitated a cut in the 2018 dividend to Shs 5 net per share. Management estimates that the investment projects thus funded will increase the growth rate of BUL's earnings and dividends to 14% per annum. Some managers, however feel that the new growth rate is unlikely to exceed 12%.

BUL shareholders require an overall return of 16% for BUL prior to the change in the dividend policy.

Required:

(a) Advise the managers of BUL on how these changes are likely to impact the company's share price.

(5 marks)

(b) Determine the breakeven growth rate. **(4 marks)**

(c) Discuss the possible reactions of BUL's shareholders and of the capital markets in general to this proposed dividend cut in light of BUL's past dividend policy.

(8 marks)

(d) Discuss whether an increase in dividends is likely to benefit the shareholders of BUL.

(8 marks)

(Total 25 marks)

Question 5

KEKO Construction Ltd (KEKO) has offered to acquire all the shares of General Machinery Limited (GML). As a defence against a possible takeover bid, the managing director (MD) proposes that GML makes a bid for KEKO in order to increase GML's size and hence make the bid for GML more difficult to conclude. It is the MD's considered view thereafter to split some shares of the GML and buy them back. Both companies are in the same industry, and GML's equity beta is 1.2 while that of KEKO is 1.05. The risk free rate and the market return are estimated to be 10% and 16% per annum respectively.

The growth rate of after tax earnings of GML in recent years has been 15% per annum and that of KEKO has been 12% per annum. Both companies maintain an approximately constant dividend pay-out ratio.

GML's directors require information about how much premium, above the current market price to offer for KEKO shares.

Two suggestions are under consideration as follows:

1. The price should be based upon the current net worth of the company, adjusted for the current value of land and buildings, plus an estimated after tax profits for the next five years.
2. The price should be based on dividend valuation model using growth rate estimates.

The statements of financial performance of the two companies are as follows:

	GML		KEKO	
	Shs '000'	Shs '000'	Shs '000'	Shs '000'
Land & buildings		560,000		150,000
Plant & machinery		720,000		280,000
Stock	340,000		240,000	
Debtors	300,000		210,000	
Bank	20,000	660,000	40,000	490,000
Less trade creditors	200,000		110,000	
Overdraft	30,000		10,000	
Tax payable	120,000		40,000	
Dividends payable	50,000	(400,000)	40,000	(200,000)
Total assets less liabilities		1,540,000		720,000
Financed by:				
Ordinary shares		200,000		100,000
Share premium		420,000		220,000
Other reserves		400,000		300,000
		1,020,000		620,000
Liabilities due after one year		520,000		100,000
		1,540,000		720,000

Additional information:

GML's land and buildings have been recently revalued.
KEKO's land and buildings have not been revalued in the last four years, during which time the average value of industrial land and buildings increased by 25% per annum. The share price for GML is Shs 10 while KEKO's is Shs 25 per share.

The most recent financial extracts of the two companies are shown below.

	GML	KEKO
	Shs '000'	Shs '000'
Turnover	3,500,000	1,540,000
Operating profit	700,000	255,000
Net interest	120,000	22,000
Taxable profit	580,000	233,000
Taxation (30%)	203,000	82,000
Profit after tax	377,000	151,000
Dividends	113,000	76,000
Retained profit	264,000	75,000

The current share price of GML is Shs 310 and that of KEKO is Shs 470.

Required:

(a) Illustrate how GML might achieve benefits through improvements in operational efficiency if it acquired KEKO Construction Ltd.

(11 marks)

(b) Discuss the main features of the share buy backs and stock splits and why GML may use them.

(14 marks)

(Total 25 marks)

TEST PAPER 5
CPA (U) JUNE 2019

Question 1

Jay Homes Limited (JHL) is a home construction company, with a niche in low cost housing units that appeal to the bottom of the income pyramid. The company plans to launch a new residential unit code-named J-Suite, and believes that this is going to be a flagship product for JHL over the next 4 years after which competition will make production no longer viable.

The J-suites Project:

JHL estimates to sell at least 600 units of J-Suites in the first year of its launch. Sales are then projected to increase by 20% for the second and third years, and then by 10% in the fourth year. Management has also set Shs 65 million as the launch and first year unit price, and then price will increase by the rate of inflation annually. The production and sale of the J-Suites will be phased out after the fourth year.

Management further estimates that the initial investment in non-current assets will be Shs 52 billion. In addition, the project will require Shs 3.5 billion in working capital, which will increase at the same rate as the increase in sales, at the start of each year. Working capital will be fully recoverable at the end of the fourth year. Production costs per unit are estimated at Shs 29 million; and this will increase by the annual rate of inflation over the life of the project. The project will also incur fixed costs of Shs 3 billion, also rising by the rate of inflation in subsequent years. Furthermore, JHL will incur marketing costs amounting to Shs 5.3 billion during the first year of the project basically to support the project's take off.

JHL pays income tax at the rate of 30%, payable in the year the tax liability arises. The company non-current investment will also receive a tax allowance of 25% on a reducing balance basis, and a balancing adjustment in the last year (4^{th} year). It is also estimated that the non-current assets will have a scrap value equivalent to 10% of the initial investment. The expected annual rate of inflation in Uganda is 5% in the first and second year, subsiding to 4% in the third and fourth year.

The head of finance has provided 14% as the cost of capital applicable to the J-Suites project. Note that the financing is being secured from a local development bank that will charge a floating rate of 11% per annum.

Risks of the J-Suites Project:

The head of finance has warned that there is need to swiftly make the decision before exchange rates further increase the initial costs and wipe out potential benefits of the project; this is mainly because most of the non-current assets components will have to be procured outside Uganda. She also

advises that any delays in commencement could lead to the project suffering higher rates of inflation and higher competition since many companies are looking at the bottom of the income pyramid for markets and growth.

Other Projects to be approved:

The head of finance has also taken advantage of the Board meetings coming early, and is presenting other projects for approval. One of the projects is the procurement of one of the alternative concrete mixers (J-Chap and J-Paka), whose summary information is as follows:

Machine:	J-Chap	J-Paka
Net present value of total cost (Shs 'million')	1,328	1,568
Payback period (years)	2.7	3.2
Useful life (years)	3	4

During the meeting, one of the directors took exception of the information on payback, which he thought was diversionary and less useful. His contention was that payback period does not provide a hint on the value that the JCL shareholders will receive at the end of such a period. He requires that the paper is presented with better focus on shareholder value creation.

The directors have also asked management to advise them on whether they should consider requesting one of the Uganda-based Islamic Finance Institutions (IFIs) to support them with finance, and if so, whether this would be under a Mudaraba or a Musharaka contract.

Required:

As a Financial Advisor to the JCL, prepare a report to the Board of Directors, which includes:

(a) An evaluation of the financial viability of the J-Suites project.
(18 marks)

(b) A discussion of the various risks that JCL should watch out for and how they can be mitigated.
(8 marks)

(c) An analysis of the sensitivity of J-Suites to initial investment and any limitations of the analysis you may make.
(8 marks)

(d) An assessment of the value of using alternative investment appraisal methods such as payback period.
(8 marks)

(e) A recommendation on whether JCL should seek a Mudaraba or a Musharaka contract including the basis of your recommendation.
(8 marks)
(Total 50 marks)

Question 2

Bangz Hotels Limited (Bangz) is a Ugandan company operating in the hotels and entertainment sector, with a chain of hotels in major geographical regions of Uganda. Bangz's annual turnover is approximately Shs 55 billion. The company has determined that they need to have an East African regional presence, in the face of increasing influence of economic integration.

Bangz has had to expand rapidly over the last 4 years in order to exploit the opportunities brought about by the expansive oil exploration activities and tourism activities in East Africa. As such, the company's debt to equity ratio has doubled to 350% over the same period, with a cost of capital currently in the region of 18% per annum.

Whereas the Board of Directors (BOD) has voted to enter the Tanzanian market in the next 12 months, they have not yet agreed on the approach they will use. The main options under consideration include:

1. Establishment of a subsidiary (Bangz Hotels (T) Limited) from scratch.
2. Acquisition of Mbao Hotels Limited (Mbao), which has similar operations and whose current turnover is about Tanzanian shilling (TShs) 30 billion per annum.

More information on the Mbao Hotels Limited deal:

1. Initial discussions with Mbao representatives indicated that the youthful shareholders are willing to accept TShs 102 billion for the takeover deal.
2. The management of Bangz has estimated that this move will have a positive impact on its debt capacity and credit ratings, with the result that the cost of capital could reduce by up to 350 basis points in the best case or by 150 basis points in the worst case scenario.
3. It is estimated that this acquisition will increase Bangz's cash flows by at least TShs 15 billion per annum forever.

Required:

(a) (i) Discuss the advantages that the Mbao deal will bring to Bangz relative to the 'subsidiary' approach to entering the Tanzanian market. **(5 marks)**

(ii) Highlight any critical issues Bangz should watch out for as they enter the Tanzanian market. **(4 marks)**

(b) Advise whether Bangz should proceed with the Mbao transaction. **(8 marks)**

(c) Discuss any **four** reasons why the Mbao acquisition may fail to enhance value of Bangz and what stakeholders should do about them. **(8 marks)**

(Total 25 marks)

Question 3

Ohira Distributors Limited (ODL) is an established distributor of agricultural inputs in Central and Southwestern Uganda. The company has increased its imports from Tanzania over the last two years, partly due to the considerable improvement in the infrastructure networks between the two countries.

As a result of one recent transaction, ODL is required to pay its Tanzanian supplier Tanzania shilling (TShs) 90 million in 3 months' time. Because of the increasing volatility of foreign exchange rates in the developing countries, management is considering the best hedging option among a forward exchange rate contract; using a money market hedge or making a lead payment.

The following information on annual interest rates and foreign exchange rates is available:

	Uganda	Tanzania
Investing	16%	13%
Borrowing	18%	15%

Exchange rates UShs/ TShs	
Spot rate	1.625 - 1.637
3 months' rate	1.651 - 1.665

Required:

(a) Advise the management of ODL on the best hedging method using the available information.

(13 marks)

(b) Discuss the:

(i) factors management should consider in developing a foreign currency hedging policy.

(6 marks)

(ii) purpose of stability in exchange rates, and describe any **three** strategies a country like Uganda could use to stabilise its currency.

(6 marks)

(Total 25 marks)

Question 4

Great Partners Limited (GPL) is a listed company with wide-ranging business interests in communication, construction and consumer goods distribution. The company is in the middle of implementation of its strategic plan 2016 - 2020, and has just realised the urgent need for fresh capital to keep it on track for attainment of the set strategic objectives.

As a result of the ever escalating interest rates in the Ugandan money and capital markets, majority of the Board members are sceptical about any debt capital. For now, they are of the view that the required Shs 12 billion in fresh capital should be raised through equity instruments. They have even queried the likely impact of any borrowing on the valuation of the company.

Given this strong opposition to debt, the Board chairman has tasked the head of finance to come up with a write up to guide the Board in selecting between debt and equity. The chairman has, however, been quoted as saying, '… we shall definitely need both debt and equity in order to maintain the current financial equilibrium. If the concerns over debt finance remain high, we shall probably go for hybrid instruments, so that the fears of either group are addressed'.

Some of the financial information about GPL is summarised below:

Number of ordinary shares in issue (million)	5
Earnings per share (Shs)	480
Dividend pay-out ratio (%)	60
Dividend per share 3 years ago (Shs)	256
Average earnings yield (%)	18

Required:

(a) Discuss the considerations that should be made in selecting between debt and equity, and make a recommendation to GPL on the way forward.

(9 marks)

(b) Advise the Board on the:

(i) likely impact of your recommendation made in (a) above on the valuation of GPL.

(4 marks)

(ii) current valuation of GPL based on the earnings yield and the dividend growth model.

(8 marks)

(d) Assess the possibility of issuance of a hybrid instrument suggested by the chairman and explain how it would operate in practice.

(4 marks)

(Total 25 marks)

Question 5

Mayo Supplies Limited (MSL) is listed on the Kampala Stock Exchange, and operates a chain of supermarkets in Uganda. It is due to hold its annual general meeting (AGM) in the next one month.

The following financial data has been extracted from the annual financial statements of MSL, as at 31 March, 2019.

	Shs '000'
Property, plant & equipment	3,375,000
Short-term investments	1,248,000
Current assets	17,554,000
	22,177,000
Issued share capital Shs 10,000 per share	4,600,000
Retained earnings	9,904,000
	14,504,000
Long-term debt:	
7% debentures	1,970,000
Deferred taxation	886,000
	2,856,000
Current assets:	
Corporation tax	2,180,000
Other current liabilities	2,637,000
	4,817,000
	22,177,000

The rather verbose chief executive officer (CEO) of MSL is now looking for ways to boost market confidence in the company's shares ahead of the AGM. He was recently quoted in the print media as having said that;

> "……I am glad that the media now understands that MSL's value cannot be undermined by arbitrage pricing; our weighted average cost of capital remains around 13% - thanks to our excellent relations with shareholders and the providers of debt finance. We shall continue to enhance our corporate governance structures, which is a sure way to provide a high and stable value to our shareholders …"

The current market value (May 2019) of MSL is Shs 327 per share cum div. The amount of dividend payable soon is Shs 1.334 billion, and the register has already been closed. The amount of dividends paid 4 years back for the same number of shares was Shs 1.037 billion. The debentures are redeemable at par in a year's time, and interest has just been paid. The applicable corporation tax rate is 30%.

Required:

As an advisor to a significant shareholder in MSL, evaluate the statement(s) by the CEO and advise him/ her of their validity relative to sound financial management practices. **(Total 25 marks)**

TEST PAPER 6
CPA (U) AUGUST 2019

Question 1

Kira Homes Limited (KHL) is a listed company that was incorporated in Uganda on 1 January, 1980. The company specialises in the manufacture and distribution of earthmoving equipment within East Africa. Due to increased demand for road construction materials in Uganda, KHL wants to invest in a culvert manufacturing machine called Duplex to increase its production capacity. The Duplex machine will cost KHL Shs 600 million. The purchase of the Duplex machine is expected to result into incremental benefits and costs as listed below:

Benefits: After commissioning the Duplex machine, KHL expects to sell 13,000 culverts in year one, and the sales volume is expected to increase by 12%, 13% and 15% in year two, three and four respectively. The initial selling price is expected to be Shs 45,000 per culvert in year one after which it will increase with the annual inflation rates.

Costs: The variable cost for each culvert is projected at Shs 27,000 in year one, increasing by the inflation rate in the subsequent years until year four. KHL has already paid Shs 50 million for market research to source the best model of Duplex machine but the Accounts Assistant does not know how to treat this cost. After commissioning, it is anticipated that KHL will incur fixed costs Shs 22 million in the first year, rising by the rate of inflation in the subsequent years. The company will also require working capital Shs 16 million before commissioning of the Duplex machine. This working capital is expected to grow with the rate of inflation until the end of year three, and will be recouped in year four.

The annual inflation rate in Uganda is 5% and is expected to remain the same until the end of year four. KHL pays corporation tax at 30% payable in the year that the tax liability arises. Existing Uganda laws allow a 25% tax allowable depreciation on a reducing balance basis for the Duplex investment project. The balancing adjustment of the Duplex machine will be available in the fourth year of the project and the realisable value of the machine is expected to be zero. KHL evaluates the viability of such projects based on a payback period of 4 years and the company's weighted average cost of capital is 16%.

Several financing options are available for the purchase of the Duplex machine. One of the local banks consulted was Tawfik Bank Uganda Limited (TBL) which has agreed to provide the needed finance for the purchase of the machine. TBL offers its clients both Islamic financing and conventional financing products. KHL will be required to abide with all the requirements of

Islamic financing principles. The products available at the bank are Musharaka, Ijarah, and Istisna'a

The Duplex project is expected to be successful, which might result in KHL's share price increasing by 10% in the first year of commissioning. Aware of this likely benefit, the CEO has asked his cousin, Apollo Mutoto, to purchase some of KHL shares and take advantage of the anticipated increase in share price when it arises.

However, according to analysts, the growth in the share price will depend on the project's net present value (NPV). If KHL fails to commission the Duplex machine in year one, then their market share and sales revenue will drop significantly. The management, therefore, wishes to know by what percentage the selling price is likely drop or increase for the investment to have zero-net present value, assuming demand remained constant.

In response to the current market conditions, the Investment Committee of KHL recently had a meeting to discuss other investment opportunities to undertake. The Finance Manager presented 15 investment projects for 2020 and their respective internal rate of return (IRR) rankings as the basis for their choice. He has recommended that IRR should be the main basis for selection of projects.

You are a senior consultant in financial management.

Required:

(a) Using the net present value (NPV) approach, advise KHL on the acceptability of the proposed investment.
(20 marks)

(b) Compute the discounted payback of the Duplex project. **(5 marks)**

(c) Assess the percentage change in price for the Duplex project to have a zero NPV, and comment on the significance of your results.
(6 marks)

(d) Advise KHL whether they should adopt IRR investment appraisal approach to all its future investments.
(6 marks)

(e) Discuss the appropriateness of Musharaka, Ijarah and Istisna'a products to KHL.
(9 marks)

(f) Comment on the ethical issues associated with CEO's advice to his cousin, Apollo Mutoto, regarding the purchase of KHL shares.
(4 marks)

(Total 50 marks)

Question 2

Family Enterprises Limited (FEL) was founded by Mr Kiera and his wife Kiesza in 1999. FEL employs only family members with Mr Kiera as the chief executive officer (CEO) and Ms. Kiesza as the operations manager. FEL makes handcraft souvenirs which are sold in the duty-free shop at Entebbe International Airport.

FEL has forecasted some cash flow deficits amounting to Shs 19.8 million for five months from 1 November, 2019. This deficit must be addressed if FEL is to continue in business. Mr Kiera and Ms. Kiesza have agreed to take a short-term loan from their bank, Kampala Bank Limited (KBL), which will be payable in five months' time. The bank's prime lending rate (PLR) is at 20.25%. However, KBL will provide a loan at an interest rate of PLR+2%. Due to uncertainties in Uganda's economic indicators, financial analysts predict that the PLR will change before 1 November, 2019 when the company wishes to take this loan. Assume it is now 1 July, 2019 and FEL's fiscal year runs from 1 July to 30 June every year.

Ms. Kiesza has tried to persuade the management of KBL to lower their lending rate but all in vain. According to the bank manager, the banks have no control over the interest rate movement because in a free market economy like Uganda, interest rates depend on the yield curve in the money and capital markets. Hence, KBL can allow FEL to hedge its interest rate risk using forward rate agreement at the following rates:

Tenure	Deposit rate	Lending rate
4v9	5.60%	6.68%

Mr Kiera has consulted you as a finance expert for advice. You have summarised FEL's current situation in one sentence: *"FEL is faced with an interest rate risk, which can be mitigated either by a forward rate agreement, interest rate futures or interest rate options"*. Consequently, Mr Kiera has decided to hire you, to guide him on how to manage the current company interest rate risks.

Required

(a) Evaluate FEL's hedging outcomes using a forward rate agreement if the PLR;

(i) increased to 22.25% **(7 marks)**

(ii) decreased to 18.25% **(5 marks)**

(b) Elucidate your comment on the current situation at FEL. **(7 marks)**

(c) Advise FEL directors on the factors that may influence the yield curve in an economy. **(6 marks)**

(Total 25 marks)

Question 3

Jumbo Super Investments Limited (JSI) is an international company with headquarters in Uganda. For the last five years, the company's primary business has been human resource recruitment, training and export of security guards, industrial and domestic workers to the Middle East. At the beginning of 2019, the Government of Uganda, through the Ministry Gender, Labour, and Social Welfare (MGL&SW) imposed a ban on all labour exports from Uganda.

As a result of the ban on labour exports, the management of JSI decided to diversify their business by investing in oil mining to mitigate both their systematic and un-systematic risks. If this proposal is accepted by the company shareholders, JSI will purchase an oil drilling machine which will be hired out to government and other oil companies in the Albertine region. It is assumed that JSI will be able to realise some reasonable return on investment given that comparable companies within the same industry such as Zeami Lubricants Limited have been earning supernormal profits from oil drilling equipment hire.

The current gearing ratio (debt to equity) for JSI is 40% and its shares have a beta (β) value of 1.58. Available records show that companies in the oil sector have a gearing ratio (debt to equity) of 0.2, with β of 1.8. The market return is 20% and the risk-free rate is 7%. JSI always pays tax at 30% and will continue paying the same tax for the foreseeable future.

Given your expertise in financial management, you have been hired by JSI as a consultant.

Required:

Prepare a report to the Board of Directors of JSI:

(a) advising on the rate of return to be applied in the evaluation of its investments in the oil sector using Capital Asset Pricing Model (CAPM).
(5 marks)

(b) discussing the assumptions of the CAPM and how they relate to the 'real world' investment decision.
(10 marks)

(c) explaining the differences between systematic risk and unsystematic risk and how they can be mitigated.
(10 marks)

(Total 25 marks)

Question 4

Kubito Limited (KL) deals in commodity trade with branches in Uganda and Kenya. KL is listed on Kampala Stock Exchange and its shares are currently trading at a premium of 20%. The company is currently wholly financed by equity as follows.

Item	Shs 'million'
Common equity Shs 1,000	2,400
Revenue reserves	1,800
Total equity	4,200

KL has identified some growth opportunities in Tanzania and the Chief Executive Officer (CEO) wants the Board of Directors to approve the acquisition of a loan to build a processing plant in that country. He contends that it is only debt finance that will make the project financially viable. The CEO further informed the Board that KL can utilise a debt capacity of Shs 500 million, representing 40% of the company's maximum debt capacity.

The CEO also submitted that KL is able to raise relatively cheaper debt finance at a 15% annual rate of interest owing to its current earnings capacity which stands at a profit of Shs 240 million before interest and tax. In his presentation, the CEO assured the Board that the earnings capacity of the company is not expected to change significantly for the foreseeable future and that the corporate tax rate is also expected to remain constant at 30%.

The Board was generally impressed with the CEO's presentation, although one member was worried about the likely financial risk of employing debt in their capital structure. Accordingly, the Board tasked the CEO to submit a detailed analysis of this proposal at the next board meeting showing the effect of introducing debt finance to the value of the company and the overall impact on the company's cost of capital. The CEO has delegated this task to you in your capacity as chief finance officer.

Required:

(a) Prepare a report to the CEO for onward submission to the Board analysing the impact of raising the suggested debt and utilising the maximum debt levels on KL's cost of capital. (State all your assumptions).

(15 marks)

(b) Assess the limitations of using Modiglian and Miller's model in determination of KL's cost of capital.

(10 marks)
(Total 25 marks)

Question 5

Flexed Pension Fund (FPF) was established in 2014 as a private pension fund for self-employed workers in Uganda. The management of FPF wishes to change their investment portfolio to avoid making losses so as to attract more clients. According to last year's financial statements, FPF made a 2% loss on its short-term investments due to market volatilities. Consequently, management of FPF resolved to put on hold all its equity investment plans till the market has stabilised.

The current Central Bank Rate (CBR) is 10%. However, it is expected to be relatively volatile in future. In your opinion as the Finance Director, FPF should invest in long-term debt such as; irredeemable bonds, redeemable bonds and redeemable preference shares because they pay a relatively higher return than most other investments and their expected future cash flows can be predicted with certainty. Extracts from FPF's financial report show that on 1 July, 2018 FPF invested close to 30% of its total funds in a 10% zero-coupon bond (June 2027) with annual redemption yield equivalent to the current CBR.

Note: The interest on the 10% zero-coupon bond is paid semi-annually.

Required:

(a) Advise the management of FPF on how to measure the market value of an irredeemable bond, redeemable bond and preference shares.

(6 marks)

(b) Assess the current market value of the 10% zero-coupon bond (June 2027), and comment on the likely consequences if the CBR reduced by 3% or increased by 3%.

(10 marks)

(c) Justify your preference for investing in long-term debt.

(9 marks)

(Total 25 marks)

TEST PAPER 7
CPA (U) NOVEMBER 2019

Question 1

Safeway Transporters Limited (SWT) operates a fleet of buses in Western and Northern Uganda and the company has been profitable since its incorporation in August 2012. Recently, management of SWT resolved to expand its operations to Kampala city by acquiring 10 new modern buses to conduct town service.

Quotations received from Safe Bus Limited (SBL), the importers of buses in Uganda, indicated that it will cost SWT Shs 220 million to acquire each bus and this cost will include all other incidental costs. The buses are expected to have a service potential of 4 years after which they will be disposed of at a fair value equivalent to 20% of their historical cost. The buses have a seating capacity of 65 passengers and each bus is expected to conduct full to capacity 4 round trips per day throughout the week. This performance is however expected to decline to three round trips per day in their last year of operation.

Management of SWT has further estimated that each passenger ticket will cost Shs 2,000 per one way trip in current terms however this fee is expected to be affected by annual inflation which is projected at 5% in year 1 and year 2 after which the inflation is expected to increase by 3% annually. The projected direct cost per passenger per trip will be Shs 1,500 and it is anticipated that this cost will vary with the movement in inflation.

SWT further estimates that the required working capital will be Shs 1.5 million each day for all buses and this is expected to increase by 10% effective year 1 until it is recouped in the final year of operation. It is also anticipated that the buses will qualify for capital allowances at a rate of 25% per annum on reducing balance basis. SWT pays corporation tax at a rate of 30% payable a year in arrears.

SWT has always evaluated similar projects on the basis of their Net Present Values (NPV) but Mr. G Muggagga the board chairman has directed that the proposed bus project be appraised using the Accounting Rate of Return (ARR) technique with a standard return set at 25%.

The finance manager at SWT has revealed that the company is considering two financing options for the project under review. The first option is to acquire these buses outright funded by a 20% 4-year bank loan from Twezimbe Cooperative Bank (TBL) and the collateral shall be the existing buses. Alternatively, SWT can enter into a lease agreement with SBL, for the lease of all buses in return for annual minimum lease payments of Shs 528 million payable in advance for a period of 4 years.

As an alternative investment option, one of the board members Mr. Tyagiri is of the view that SWT should explore the viability of investing overseas in countries like Mauritius where returns on similar investments are very high as reflected in the September 2019 World Economic Report on Africa. Mr. Tyagiri has also suggested that it is high time SWT considered investing in long-term securities on Islamic capital markets although he is not sure whether the Islamic capital market in Uganda has already set off. Mr. Tyagiri justifies his proposals on his desire to dilute the company's excessive concentration in the transport sector and the absence of a documented investment policy in the company.

Consequently, the Board has tasked the Chief Executive Officer (CEO) to evaluate all these investment proposals and present a report at the next board meeting due to take place in December 2019.

Required:

As the finance manager of SWT, prepare a report to the CEO for further presentation to the board of directors which includes:

(a) Evaluation of the:
   (i) financial viability of the proposed investment in buses using ARR and an assessment of the validity of the ARR appraisal technique.
   (18 marks)
   (ii) two financing options available for acquisition of buses
   (17 marks)

(b) Discussion of the
   (i) risks and challenges associated with overseas investments and how SWT can mitigate them.
   (8 marks)
   (ii) challenges associated with absence of an investment policy at SWT.
   (3 marks)

(c) Assessment of the drawbacks of investing in long-term securities on Islamic capital markets.
   (4 marks)
   (Total 50 marks)

Question 2

(a) Prime Investments Limited (PIL) specializes in construction of houses for sale. PIL is considering a substantial investment in house designs for sale to medium and high income earners. The designs under consideration are self-contained 2-bedroom houses and self-contained 4-bedroom houses, with each type supplemented by a swimming pool. Management of PIL believes that these two projects are not in any way related in their cash flows since they are customized to meet totally different customer groups of significantly different income generating earning potential.

It is anticipated that the returns from these two projects will however vary depending on the state of economic situations in Uganda. Recent forecast have indicated that Uganda's economy will undergo a cycle of 4 phases namely; slump, recovery, prosperity and recession. The portfolio net present value of returns and associated probabilities are set out below.

State of Economy	Probability	2 bedroom houses Shs '000'	4 bedroom houses Shs '000'
Prosperity	0.20	84,000	144,500
Recovery	0.30	72,000	150,000
Recession	0.40	48,000	73,400
Slump	0.10	48,000	28,200

Required:

Estimate the:

(i) covariance of PIL's proposed portfolio and advise PIL on the way forward.

(12 marks)

(ii) degree of correlation of the two assets in the portfolio and comment on your results.

(3 marks)

(ii) PIL is also separately considering implementing a 3-bedroom house project in South Sudan. The expected payoff of the project is estimated to be as follows:

State of Economy	Probability	Pay off (%)
Growth	0.30	20
Recession	0.40	10
Stagnation	0.30	-10

PIL's existing activities are expected to generate a return of 20% with a standard deviation of 10%. It is anticipated that the correlation coefficient of PIL's returns with that of the three bedroomed project is -0.45 yet the

existing returns are 0.77 correlated with the returns on the market portfolio.

A recent market survey revealed that the proposed investment will have a correlation coefficient of -0.25 with the returns on the South Sudan market. PIL is a fully equity financed company with an asset beta of 1.5 and the return on treasury bills in South Sudan averages 6% p.a while market return averages 300% of the treasury bill return.

Assuming that the proposed investment requires capital equivalent to 40% of PIL's assets;

Required:

Estimate the:

(i) risks and return of the three bedroomed project**.**

(4 marks)

(ii) effect of the proposed investment on PIL's beta.

(6 marks)
(Total 25 marks)

Question 3

Plumbers World Limited (PWL) is a locally owned company listed on the Uganda Stock Exchange (USE) since 2017. PWL produces and sells water tanks in Western Uganda. For the financial year ended 30 June 2019, PWL produced and sold 12,000 water tanks at an average price of Shs 450,000 per tank. As part of its growth strategies, PWL is contemplating on expanding its operations to production of water pipes – a move that is projected to raise revenue by 30%.

To effect the expansion, additional financing will be required and PWL expects to incur capital expenditure equivalent to Shs 540 million and all current assets and current liabilities are expected to vary with sales. PWL's statement of profit or loss for the year ended 30 June 2019 shows a profit before tax amounting to 10% of its annual revenue. This profit is however after allowing for tax allowable charge of Shs 54 million which is expected to increase by 20% upon implementation of the expansion proposal.

PWL pays corporation tax at a rate of 30% payable a year in arrears and the company has just paid dividends of Shs 80 million although these dividends are expected to grow by 10% in the following year. It has also been established that PWL always maintains bank balances at not less than 3% of its total revenue.

Extracts from PWL's statement of financial position as at 30 June 2019 are set out below:

	Shs '000'
Assets:	
Non-current assets	1,700,000
Current assets:	
Inventory	840,000
Trade and other receivables	165,000
Bank	220,000
Total assets	2,925,000
Equity and liabilities:	
Equity shares of Shs.10,000 per share	1,000,000
Revenue reserve	725,000
Non-current liabilities:	
20% loan notes	440,000
Current liabilities:	
Trade and other receivables	460,000
Income tax payable	300,000
Total equity and liabilities	2,925,000

Required:

As a financial consultant, advise PWL on;

(a) additional external financing required for the expansion proposal assuming that depreciation is a tax allowable deduction.

(12 marks)

(b) available sources of finance for its expansion proposal

(5 marks)

(c) factors to consider in selecting between debt and equity finance.

(8 marks)

(Total 25 marks)

Question 4

Skeptic Uganda Limited (SUL), a listed company on Kampala Stock Exchange (KSE) is planning to acquire Dilema Uganda Limited (DUL) another listed company on USE by way of share exchange.

SUL is listed with 1,000,000 shares of Shs 1,000 at par and currently its shares trade at a premium of 50% per share. The current Earnings Per Share (EPS) of SUL is Shs 350 and this is expected to increase in future.

DUL has 600,000 shares in issue with a nominal value of Shs 1,000 and an earnings yield of 25%. For the year ended 30 June 2019, DUL made an after tax profit of Shs 120 million and declared 60% of the profit as dividends.

Management of both companies are discussing a share exchange proposal in proportion to the relative EPS of both companies.

Required:

(a) Assess the impact of the proposed merger on the EPS for the shareholders of both companies.

(10 marks)

(b) Estimate the value of DUL using Earnings Yield method of company valuation.

(3 marks)

(c) Discuss the validity of mergers as an expansion strategy.

(12 marks)
(Total 25 marks)

Question 5

Real Publications Limited (RPL) is a media company specializing in print media and has an equity to debt ratio of 3:2. RPL has an equity beta of 0.8 and its debt is assumed to be risk free with a yield to maturity of 8%. The normal return on a market portfolio in the print media industry averages to 20% and currently RPL pays corporation tax at a rate of 30%.

Aware of the viable investment opportunities in a number of projects, RPL intends to take on a specific project in events management whose equity beta is 1.2 and has a projected debt equivalent to 25% of the project's total capital. The directors of RPL believe that investing in events management will not alter the company's capital structure but the diversification is expected to generate substantial return that will boost the earnings of RPL.

Required:

(a) Estimate the appropriate cost of capital to be used by RPL in evaluating the proposed investment of events management.

(8 marks)

(b) Discuss the concepts of financial and operating gearing and explain the effects of excessive gearing to an organization like RPL.

(10 marks)

(c) Discuss the interaction between financing and investment decisions as could be applied at RPL.

(7 marks)
(Total 25 marks)

TEST PAPER 8
CPA (U) DECEMBER 2020

Question 1

Premium Construction Limited (PCL) was incorporated in Uganda, as a company limited by shares, on 1 January 2016 with issued and fully paid up share capital of Shs 2.5 billion. PCL operates in the construction sector with government and large companies as its major clients although it also undertakes sizeable construction works for individuals.

The company's capital structure comprises of 60% debt and 40% equity. PCL has been making marginal profits since its incorporation, except for the year ended 31 December 2019 when it reported a loss of Shs 250 million. As a result of this poor performance, the Board of Directors at its meeting held on 28 February 2020 directed the Managing Director to devise credible strategies that will ensure that the company returns to profitability. Consequently, the Executive Committee convened a meeting at which the Managing Director instructed the Finance Manager and the Head of Projects to come up with viable investment proposals that will address the directive of the Board.

After a series of engagements and deliberations on a number of potential projects, the Finance Manager and the Head of Projects resolved to recommend to the Managing Director a proposal to acquire fifteen (15) modern grading machines. This proposal is expected to boost the company's revenue and eliminate the cost of hiring that they have been incurring whenever they get contracts that require such specialised machines. The detailed proposal together with related costs and revenues is set out in the paragraphs that follow.

The modern grading machines will be acquired from Japan at an invoice price of USD 67,000 per machine. PCL will also pay import duty and other related taxes of USD 55,000 per machine during shipment. Insurance and other incidental costs are expected to be USD 12,100 per machine. The exchange rate is projected to be Shs 3,800 per USD.

PCL's annual revenue for the year ended 31 December 2019 was Shs 65 billion and this is expected to be the revenue capacity of the existing machines for the foreseeable future. The acquisition of the modern grading machines is expected to increase PCL's revenue by 80% for year 1 and subsequently by 10% per annum throughout the life of the machines. The machines are expected to have a useful life of five (5) years after which they will be disposed of at 5% of their initial cost.

With the acquisition of modern grading machines, the direct costs (variable costs) currently at Shs 55.25 billion will also increase by 80% in year 1 and later by 8%

for each of the subsequent years although these costs are expected to drop by 10% in Year 5.

PCL's working capital, currently at Shs 12 billion, will initially increase by 70% as a result of the acquisition of the grading machines. Subsequently, the working capital requirements will vary with the rate of inflation throughout the life of these machines.

The acquisition of the grading machines will also result into an increase in fixed costs. Currently, PCL incurs annual fixed costs of Shs 10 billion but with the new machines, the fixed costs are expected to increase to Shs 12 billion in year 1 and later vary with the inflation rate.

The grading machines attract a tax allowable depreciation of 20% per annum on a reducing balance basis and a balancing charge arises on disposal. PCL pays corporation tax at a rate of 30% per annum payable one year in arrears.

The estimated revenue and variable costs above are based on current chargeable prices and costs and therefore constitute real cash flows. Revenue and variable costs will also be affected by inflation. PCL expects inflation to be 10% in the project's year 1 and is expected to decline to 8% per annum in the subsequent years.

PCL's cost of capital for such investments normally averages to 20%. Since incorporation, PCL has always evaluated the viability of similar investments using the discounted payback period technique with standard payback period set at 3 years. The Finance Manager has however advised that the investment in modern grading machines be evaluated using the net present value (NPV) technique as the technique measures the project's returns in absolute amounts.

As a risk diversification strategy, the Head of Projects has also proposed that PCL should explore the viability of having offshore investments in countries with minimum regulatory compliance as investments recoup initial capital outlay in a very short period of time. The Finance Manager is however opposed to this view as he believes that offshore investments in unregulated or less regulated countries are highly susceptible to money laundering practices and its associated effects. He has instead proposed that PCL should consider investing in Islamic capital markets to supplement its investments in the construction sector. He is however still compiling some of the critical information about Islamic finance and one of the clarifications he will be making include the functions of a Shari'ah Supervisory Board which is a requirement under Islamic finance.

The Managing Director has been briefed about the above investment proposals and is quite impressed and as such has further tasked the Finance Manager to proceed and prepare a detailed report about all these proposals.

Assume you are the Finance Manager at PCL.

Required:

Prepare a report, to the Managing Director for further submission to the Board that includes:

(a) Evaluation of the financial viability of acquiring modern grading machines using the net present value (NPV) technique.

(21 marks)

(b) Assessment of the financial viability of the project in (a) above using the discounted payback period method.

(5 marks)

(c) Assessment of the sensitivity of the grading machines project to the projects;

(i) cost of capital.

(5 marks)

(ii) initial investment.

(3 marks)

(d) Discussion of the effects of money laundering to economies like Uganda and measures to curb financial crimes.

(8 marks)

(e) A discussion of the necessity of a Shari'ah Supervisory Board and how it could be constituted by PCL.

(8 marks)

(Total 50 marks)

Question 2

Predator Uganda Limited (PUL) was incorporated in Uganda in 2011 as a company limited by shares. PUL specialises in the production and sale of agricultural inputs including fertilizers and pesticides mainly in Eastern Uganda. Recently, the company's management resolved to expand its operations to Western Uganda by acquiring Seeds Uganda Limited (SUL), a firm that specialises in the supply of high-quality seeds in Western Uganda.

The two companies have similar capital structure composed of gearing levels (debt : debt + equity) of 30%. The directors of PUL estimate that the acquisition of SUL will result into the following additional after-tax annual cash flows over the next few years.

Year	2021	2022	2023	2024	2025 onwards
Cash flows before interest (Shs '000')	417,500	409,200	315,600	475,000	674,000

Extracts from SUL's annual financial statements revealed that the company has a 5 year 18% bank loan of Shs 350 million from Twezimbe Cooperative Bank (TCB) and a 10% debenture of Shs 100 million trading at par.

According to the recently issued financial sector review report, the return on treasury bills in Uganda currently averages at 9% per annum while investments in the agricultural sector currently yield a market return of 20%. PUL's equity beta is 1.5 and pays corporation tax at a rate of 30% per annum.

As a fallback position against any possible resistance from the shareholders of SUL, PUL is contemplating on acquiring Pure Seeds Limited (PSL), a relatively smaller company compared to SUL but operating in the same sector like SUL. PSL has just paid dividends to its shareholders of Shs 220 million for the year ended 31 December 2019 and these dividends are expected to grow by 5% per annum in the foreseeable future. It is also estimated that although PSL operates in the same sector like SUL, an additional risk premium of 2.5% will be applicable to the shareholders because the company is small and unquoted on the Stock market.

Acting as an Investment Advisor to PUL.

Required:

Prepare a report to the Directors of PUL advising on the;

(a) Viability of acquiring SUL using the discounted free cash flow method if PUL has been asked to pay Shs 1.8 billion to the shareholders of SUL.

(10 marks)

(b) Maximum value of PSL using the dividend valuation method that PUL should pay for the acquisition.

(3 marks)

(c) Reasons why some mergers and takeovers may at times fail to meet the objectives of shareholders.

(6 marks)

(d) Techniques the shareholders of PSL and SUL can use to resist the takeover by PUL.

(6 marks)

(Total 25 marks)

Question 3

Comfortable Homes Limited (CHL) was established in 2018 and runs an accommodation facility on Kitende hills, just a few kilometres away from Uganda's main international airport. CHL's target customers are mainly tourists from the region and abroad. CHL's most appealing features are its evergreen environment and a clear view of Lake Victoria. Other facilities available at CHL are a world class bar, stocked with premium wines and a restaurant that serves local and intercontinental cuisine.

Despite the premium facilities mentioned above, CHL has since its incorporation reported marginal profits. Management has now resolved to expand its amenities by setting up three different projects to supplement the existing facilities. The projects under consideration include setting up a gym, a swimming pool and a sauna. It is estimated that the gym and swimming pool will each require initial capital of Shs 240 million, while the sauna will require Shs 260 million to be set up. The Chief Finance Officer (CFO) of CHL has indicated that only Shs 500 million has been reserved for any capital investments and that all projects under consideration are indivisible. According to the CFO, the firm is unable to raise extra finance because it is not listed on the securities exchange and is highly geared to the extent that debt providers are not willing to offer extra finance.

The expected project returns and project specific risks are set out below:

Project	Expected return (%)	Risk (%)
Gym	22	12
Swimming pool	20	9
Sauna	17	7

The project specific beta values are assessed to be 1.4, 0.9 and 0.7 for Gym, Swimming pool and Sauna respectively. Analysis of the relationship between the projects conducted by the firm's investment analyst revealed the following covariance levels.

Portfolio	Covariance (%)
Gym and Swimming pool	60
Gym and Sauna	75
Swimming pool and Sauna	42

The current return on government treasury bills averages at 9% per annum while projects in a similar sector like that of CHL yield a market return of 20%.

Assume you are the CFO of CHL;

Required:

(a) Analyse and recommend to Management, the most appropriate portfolio of investments using:

(i) Coefficient of variation

(10 marks)

(ii) Capital Asset Pricing Model with alpha values.

(5 marks)

(b) Explain the practical applications and limitations of the Capital Assets Pricing Model.

(10 marks)
(Total 25 marks)

Question 4

Tugende Uganda Limited (TUL) is listed on Nakawa Stock Exchange (NSE). The company was incorporated in 2012 and obtained its public listing in 2015. TUL operates in the transport sector and has been profitable since incorporation.
Despite the sustained growth in profits, TUL has never resolved on which dividend policy to adopt in order to keep its shareholders satisfied. Following complaints from some shareholders, the board has directed management to evaluate the company's current dividend policy and recommend alternative dividend policies that can effectively meet shareholder interests.

Extracts from TUL's financial statements for the years 2015 to 2018.

Year	Share capital (Shs '000')	Profit before tax (Shs '000')	Dividends paid (Shs '000')
2018	5,700,000	1,100,000	462,000
2017	5,250,000	907,500	290,400
2016	4,875,000	900,000	342,000
2015	4,500,000	875,200	472,608

On 1 January 2019, TUL issued 250,000 ordinary shares at Shs 2,700 per share representing an 80% premium above the par value of the shares. During the same year TUL had profit before tax of Shs 1,245 million and the dividends paid amounted to Shs 454.4 million.

Required:

(a) Evaluate the dividend policy adopted by TUL for the past five years and advise the Board on alternative dividend policies that can satisfy shareholders' interests.

(12 marks)

(b) Discuss;

(i) any **four** practical factors that influence dividend policies in organisations like TUL. **(4 marks)**

(ii) the relevance of the traditional school of thought in declaration and payment of dividends. **(3 marks)**

(iii) the likely impact of the COVID-19 epidemic on the financial prospects of TUL. **(6 marks)**

(Total 25 marks)

Question 5

Harvest Uganda Limited (HUL), is a listed company on the Kampala Securities Exchange (KSE), with a credit rating of B+ which is also the credit rating of Uganda. HUL has a debt to equity ratio of 20% but operates in the garments sector that has a gearing ratio of 35%.

In the recently concluded executive committee meeting, the company Chief Finance Officer (CFO) advised that HUL should consider stopping its practice of following the creditor hierarchy and instead alter its capital structure by raising more debt as this is viewed as an alternative of increasing the value of the company. The CFO borrows this idea from the Modigliani and Miller school of thought and she believes that a company that is 100% geared always attracts a greater value. The meeting unanimously agreed that the company tests the market by first issuing a 4 year 10% bond of Shs 450 million redeemable at par.

The current annual returns on similar government securities and related annual risk premiums for the garments sector are set out below.

Year	Return on government bonds (%)	Risk premium
1	8.0	2.0
2	8.5	2.5
3	9.5	3.5
4	11.0	3.0

Required:

(a) Advise management on the appropriate price at which the 4 year 10% bond Shs 450 million should be issued and the duration of the bond. **(17 marks)**

(b) Discuss the Modigliani and Miller school of thought to capital structure and evaluate any **three** determinants of an optimum capital structure of a company. **(8 marks)**

(Total 25 marks)

TEST PAPER 9
CPA (U) MARCH 2021

Question 1

Pakasa Uganda Limited (PUL) was incorporated in Uganda in 2011 as a company limited by shares. PUL specializes in production of a wide range of products including iron sheets and steel bars among other building materials. Over the years, PUL has gained a good reputation throughout the region on account of its quality products and affordable prices offered to the customers.

The annual financial statements for PUL for the year ended 30 June 2020 indicated that the company made profits after tax of Shs 12 billion and immediately declared dividends equivalent to 40% of the after tax profits subject to the shareholders' approval. The company's shareholders subsequently approved the dividends at their Annual General Meeting (AGM) held on 4 October 2020.

During the AGM, one of the shareholders Mr. Kabaawo was concerned about the company's excessive concentration in a single sector (manufacture of building materials) and pointed out that however much PUL is profitable, a disruption in the real estate sector may erode away all the company's earnings. Other shareholders were in agreement with Mr. Kabaawo and immediately tasked the Board to assess the viability of any potential diversification to other sectors. The Board delegated this responsibility to the managing director who has come up with the following investment proposals for approval by the Board.

	Print Media	Floor Tiles	Cosmetics
Initial outlay (Shs '000')	(3,500,000)	(24,000,000)	(2,500,000)
Profit after tax (Shs '000')	850,000	6,200,000	680,000

The Managing Director (MD) has further informed the Board that all the above investments will be for a period of five years except the cosmetics project whose duration is projected at four years. In his presentation, the MD informed the Board that the profits after tax for each project are expected to increase by 15% annually effective year 2 of operation for all projects although no growth will be expected in year 5 but instead a significant decline of 10% is anticipated. PUL's weighted cost of capital averages to 10% per annum and this is applied to evaluation of all PUL's projects.

The head of investments at PUL has revealed that working capital requirements are projected at 2% of each respective project's initial outlay. Working capital will increase by 5% annually and will be recovered in each project's last year of operation. The MD also informed the Board that the company has reserved Shs 27.5 billion for any potential investments and that they do not intend to raise extra funding from any other source. This is on account of the high costs of debt finance and inability to issue shares to raise equity capital because the process of listing PUL on the Stock Exchange is still work in progress.

The MD further said, "I should also let the Board know that the chairman of Capital Markets Authority is my friend; so I propose that this Board approves a special package for him so that he can accelerate the process of listing our company". In his justification, the MD reiterated that the capital markets in Uganda are efficient and that listing PUL will help the company enjoy the benefits of this market efficiency.

The Board was pleased by the MD's presentation and tasked him to prepare a more informative report detailing the viability of these investment proposals to be presented at the forthcoming Board meeting. The MD has delegated this task to you, the head of investment.

Required:

Prepare a report to the MD for presentation at the forthcoming Board meeting detailing the:

(a) assessment of the financial viability of the proposed investments using profitability index.

(20 marks)

(b) assessment of the usefulness of profitability index in investment appraisal process.

(5 marks)

(c) evaluation and recommendation to the Board on the most viable investment combination assuming that all investment proposals are non-divisible.

(8 marks)

(d) justification of using debt capital rather than equity capital to finance investments.

(5 marks)

(e) forms of efficient market hypothesis and their implications to PUL;

(8 marks)

(f) evaluation of the MD's proposal for a special package to the chairman of Capital Markets Authority.

(4 marks)

(Total 50 marks)

Question 2

Tillex Uganda Limited (TUL) is a local company that was incorporated in Uganda in year 2015. TUL deals in distribution of hardware products such as tiles, cement, and plumbing material among others. Management of TUL is considering expanding its operations to include electronics, garments and stationery sectors as a way of diversifying its risk.

Management has reserved Shs 400 million for all investment proposals and it has been established that each investment would require initial capital of Shs 200 million. Management has further revealed that the returns of the proposed investments under review will depend on the state of Ugandan economy as set out below.

		Rate of return (%)		
State of Economy	Probability	Electronics	Garments	Stationery
Depression	0.10	-5	8	-10
Recovery	0.40	10	20	18
Boom	0.50	30	15	20

Management believes that the addition of the proposed investments will significantly increase the value of the company, but is not sure about which portfolio of investments to undertake and they are seeking advice.

Required:

(a) Evaluate the investment decision facing TUL using portfolio analysis and advise on the way forward.

(15 marks)

(b) Explain how a company like TUL can use the mean-variance rule and correlation coefficient to select optimal portfolios.

(5 marks)

(c) Assess the relevance of Arbitrage Pricing Theory to a company like TUL.

(5 marks)

(Total 25 marks)

Question 3

(a) Galop Uganda Limited (GUL) was established in year 2012 and deals in manufacture of cosmetics and detergents for sale to medium and high income earners. GUL's subsidiary in Uganda is located in the central region where there is much demand for its products. In addition to its domestic operation, GUL has two subsidiaries operating in Kenya and Tanzania which have been in operation since September 2017. GUL's subsidiaries are allowed to transact with each other provided the transactions are within the requirements of the transfer pricing policy of the group.

A review of the recent annual financial statements for GUL and its subsidiaries as at 30 June 2020 revealed the following current account balances.

	Payables		
Receivables	Uganda	Kenya	Tanzania
Uganda	-	UShs 40 million	UShs 35 million
Kenya	KShs 25 million	-	KShs 20 million
Tanzania	TShs 10 million	TShs 42 million	-

The directors of GUL Group have resolved to introduce a netting system to manage intra group transactions and in doing so, the Ugandan Shilling shall be the settlement currency of the Group. As at 30 June 2020, the exchange rates quoted were as set out below.

Shs 1 = KShs 0.0333
Shs 1 = TShs 0.625
KShs 1 = TShs 18.77

Required:

(i) Evaluate the impact of netting to GUL Group and show the final transactions required to be settled.

(7 marks)

(ii) Explain any three factors responsible for fluctuation in foreign exchange rates in countries like Uganda.

(6 marks)

(iii) Discuss any two internal hedging options available to GUL apart from netting.

(4 marks)

(b) GUL imports its inputs for cosmetics and detergents from Dubai and for the month ended 31 October 2020, the financial records of GUL showed that the company had USD 25,000 payable to Beauty Cosmetics Limited, a Dubai-based company, for the purchases made during the period ended 31 October 2020. The payable is due in 30 days and GUL is considering hedging against the likely forex fluctuations.

The current spot rate is Shs/USD = 3,600 – 3,700 whereas the futures rate is quoted at 3,700. It has been established that the standard size of a 3 months USD futures contract is USD 6,250 while the 30 days spot rate is anticipated at Shs/USD = 3,710 – 3,780 with the closing futures price projected at 3,800.

Required:

Advise GUL on how it can set up a futures hedge and show the results of the hedge as at 30 November 2020.

(8 marks)
(Total 25 marks)

Question 4

Super Uganda Limited (SUL) is a listed company on the Kampala Stock Exchange (KSE) with a Price/Earnings (P/E) ratio of 6.0 times. SUL specializes in production of Agricultural chemicals for sale on the local market although some are exported to South Sudan.

As part of SUL's expansion strategy, the directors of the company are currently considering acquiring Wonder Yield Limited (WYL) a non-listed company that specializes in distribution of improved agricultural seeds countrywide. Information about the P/E ratio of WYL is not available but the Directors of SUL estimate that it is about 50% of SUL's P/E ratio. The extracts of the recent financial statements of WYL are set out below.

Summarised Statement of Profit or Loss for year ended 30 September 2020

	Shs '000'
Revenue	85,400,000
Profit before interest and tax	28,500,000
Interest expense	(1,400,000)
Profit before tax	27,100,000
Taxation	(8,130,000)
Profit after tax	18,970,000

Summarised Statement of Financial Position as at 30 September 2020.

	Shs '000'
Assets	
Non-current Assets	54,700,000
Net current Assets	17,600,000
Total Net Assets	72,300,000
Financed by:	
Equity and Reserves:	
Equity shares of Shs 1,000	40,000,000
Revenue reserves	19,700,000
Other components of equity	1,400,000
Non-current liabilities:	
12.5% loan notes	11,200,000
Total Capital	72,300,000

The following information is also relevant:

i. SUL is a fully equity financed entity with an asset beta of 2.5. The return on treasury bills in Uganda is 8%, however available market data indicates that the return in the Agricultural sector averages to 12%.

ii. It is anticipated that the acquisition of WYL will result into annual profit before tax of Shs 32 billion for five years. The annual profits are expected to increase by 10% each year effective year 2 however in year 5, a growth of 8% is expected. Both companies pay corporation tax at a rate of 30% payable in the year the tax liability arises.

Required:

(a) Estimate the maximum price that the shareholders of SUL are willing to pay to acquire WYL using;

(i) P/E ratio method **(3 marks)**

(ii) discounted cash flow method **(7 marks)**

(b) Explain any four reasons why some mergers/acquisitions fail to enhance shareholder value.

(8 marks)

(c) Discuss the concept of synergy and any three sources of financial synergies that can accrue to SUL as a result acquiring WYL.

(7 marks)

(Total 25 marks)

Question 5

Biva Electronics Limited (BEL) is a listed company that deals in importation and distribution of electronics in central Uganda. BEL's cost of capital is 20% per annum and the entity is listed with 20,000 shares of a par value of Shs 10,000 but currently trading at a premium of 12.5%. BEL is considering declaration and payment of a dividend of Shs 500 per share at the end of the current year because the company expects to generate after tax profits equivalent to Shs 25 million.

The head of investments at BEL has revealed that the company also has a number of viable investment proposals that require funding worth Shs 40 million as part of the company's five year strategic plan. He is of the view that BEL should suspend paying dividends and use all earnings to undertake these viable investments so as to increase the value of the company. The company's Chief Finance Officer (CFO) however does not agree with his colleague as he holds a view that the value of any company is not affected by distribution of dividends.

Required:

(a) Using Modigliani and Miller (M&M) theory to dividend policy, discuss the validity of the CFO's view on distribution of dividends.

(12 marks)

(b) Justify the validity of the traditional school of thought to dividend policy.

(8 marks)

(c) Explain the concept of scrip dividends and show why companies may opt for scrip dividends.

(5 marks)

(Total 25 marks)

TEST PAPER 10
CPA (U) 0CTOBER 2021

Question 1

Classic Millers Limited (CML) was established in 2014 as a limited company specialising in production of maize and wheat flour for supply to both the domestic and regional market especially in South Sudan. CML was listed on the Uganda Stock Exchange on 1 January 2018 with issued and fully paid up capital of Shs 7.5 billion comprising of 5,000,000 ordinary shares of Shs 1,500 at par.

Since incorporation, CML has been reporting substantial profits mainly driven by its high volumes of exports to South Sudan. As part of its continuous expansion strategy, CML is considering extending its exports to Kenya where it has been established that a high demand for maize and wheat flour exists owing to attacks by locusts in addition to seasonal bad weather. The expansion of exports to Kenya will necessitate acquisition of new modern milling machines to increase production; this is because the current machines can only support the current/existing demand and are not modifiable. Management is therefore considering the acquisition of two (2) modern milling machines at a total cost of Shs 1.6 billion to meet the expansion objectives. The modern milling machines are estimated to have service potential of five (5) years after which they will be disposed of at 20% of their historical cost.

CML currently produces 10,000 tonnes and 20,000 tonnes of wheat and maize flour respectively per annum and sells each kilogram of wheat and maize flour at Shs 3,000 and Shs 1,500 respectively. With the acquisition and installation of a modern milling machines, the total production/sales of wheat and maize flour are projected to be as follows:

Year	1	2	3	4	5
Wheat flour (tonnes)	16,000	18,000	16,500	16,200	14,700
Maize flour (tonnes)	28,000	30,000	29,000	25,600	25,000

Currently, CML incurs unit variable production costs of Shs 1,800 and Shs 900 to produce a kilogram of wheat and maize flour respectively. The unit selling prices and variable production costs are stated in real terms and are expected to vary with movement in inflation rates which are projected to be 5% each year from year 1 to year 3 and thereafter increase to 6% in the subsequent years.

The new machines will necessitate incurring additional initial working capital equivalent to Shs 2.7 billion which will subsequently vary with the change in inflation rates until it is recouped in year 5. CML's fixed production costs

currently at Shs 8.0 billion will increase by 40% in the first year of operation and subsequently vary with the movement in inflation rates in the subsequent years.

The new machines will qualify for tax depreciation allowance at 20% per annum on reducing balance basis and a balancing charge or allowance will arise at the end of the machines service potential. CML pays income tax at 30% per annum, payable in the year in which taxable profits arise. CML has a policy of evaluating the viability of all its capital investments based on their respective payback periods with a standard payback period set at 3 years. Management has however resolved that the investment in modern milling machines should be evaluated using the Internal Rate of Return (IRR) technique with a standard rate of return set at 25%. This minimum IRR is derived from the fact that the project will be financed by a loan from Twezimbe Commercial Bank (TCB) at an interest rate of 25% per annum.

The Finance Manager at CML has further advised that it would be more prudent to provide for possible uncertainties that may affect the proposed investment. Accordingly, she has recommended attachment of certainty equivalent factors to all expected cash flows. The certainty equivalent factors have been estimated at 0.90, 0.80, 0.75, 0.70 and 0.65 for years 1 to 5 respectively.

Another project under consideration is the replacement of four (4) of the company's delivery vans which have a remaining service potential of three (3) years. CML has established that the cost of new delivery vans will be Shs 60 million per van and the relevant information relating to the existing delivery vans is set out below.

Year	Total expected disposal proceeds (Shs '000)	Total maintenance and repair costs (Shs '000)
0	60,000	14,000
1	48,000	14,500
2	40,000	15,700
3	7,000	17,200

Management has resolved that this replacement decision be evaluated using the company's standard cost of capital of 25%.

Given the heavy initial cost outlay required for the investment proposals under consideration, the Finance Manager has advised that it is high time CML considered undertaking Islamic finance to fund its various projects. Management is however not sure about how developed Islamic capital markets are in Uganda.

Aware of the intended capital investments at CML, the Marketing Manager who is also the chairman of the Contracts Committee at CML, has approached his brother Mr. Mwezo, the owner of Sparkles Car Bond (SCB) to participate in the bidding process and has advised him to offer delivery vans at Shs 58 million each, a price that is relatively lower than the budgeted cost of Shs 60 million per van. The Marketing Manager believes that the saving of Shs 2 million per van will convince management to award the contract to SCB together with his position on the Contracts Committee.

Required:

Taking on the role of Finance manager at CML, prepare a report to management that includes;

(a) An evaluation of the viability of investment in modern milling machines, using internal rate of return (IRR) technique and the validity of using the technique. (Ignore certainty equivalent factors).

(24 marks)

(b) An assessment of the viability of investment in modern milling machines using Net Present Value (NPV) technique while incorporating certainty equivalent factors.

(6 marks)

(c) A recommendation of the appropriate replacement cycles of delivery vans.

(8 marks)

(d) Assessment of the effects of conflict of interest and insider trading to organisations like CML.

(6 marks)

(e) Discussion of the requirements for sustainable growth of Islamic capital markets in Uganda.

(6 marks)

(Total 50 marks)

Question 2

Beauty World Limited (BWL) was incorporated in Uganda in 2017 and specialises in the production and sale of body lotions, perfumes, jellies and other cosmetic products.

BWL is popular amongst the youth who contribute almost 80% of the company's annual revenue. The company imports all its raw materials for production of cosmetics from Dubai on credit and is always offered credit period of 3 months. BWL settles all its payables in US Dollars (USD) at or before expiry of the specified credit periods. A review of management accounts for the quarter ended 30 September, 2021 revealed that BWL has a payable of USD 150,000 due in three (3) months' time. The company's Finance Manager is however worried that the current outbreak of COVID-19 in the world will have a significant impact on future exchange rates and has opted to hedge against this likely forex exposure.

BWL's finance policy does not specify any hedging techniques that the company should use but has a generic clause that requires the company to hedge against foreign exchange risk. Data available from the financial markets on annual cost of borrowing, yield on deposits and exchange rates, USD/UShs, as at 30 September, 2021 revealed the following;

Spot rate	3,600 - 3,650
1 month forward	3,660 - 3,690
3 months forward	3,650 - 3,670

	Borrowing rate		Deposit rate	
	UShs	USD	UShs	USD
1 month	20%	12%	10%	8%
3 months	22%	14%	12%	9%

BWL also has regional subsidiaries in Kenya and Tanzania and management accounts for the quarter ended 30 September, 2021 revealed the following intercompany balances.

	Paying subsidiary (figures in 000's)		
Receiving subsidiary	Uganda	Kenya	Tanzania
Uganda	-	UShs. 185,000	UShs. 120,000
Kenya	KShs. 12,000	-	KShs. 10,000
Tanzania	TShs. 140,000	TShs. 160,000	-

The settlement currency is the currency of the parent company and the applicable exchange rates as at 30 September, 2021 were as follows;
KShs/UShs = 34
TShs/UShs = 1.65

Required:

(a) Assess the appropriateness of using the following hedging techniques and advise BWL on the most appropriate technique.
   (i) Forward contract
   (ii) Money market
   (iii) Lead payment

(12 marks)

(b) Evaluate the impact of multilateral netting on BWL group as a whole and show the transactions required to be settled.

(7 marks)

(c) Discuss the effects of foreign exchange rate fluctuations to organisations like BWL.

(6 marks)
(Total 25 marks)

Question 3

Millennium Chemicals Limited (MCL) specializes in production and distribution of medicines in Uganda. MCL is listed on Kampala Securities Exchange (KSE) with authorized and fully paid capital of Shs 10 billion made up of 2.5 million shares of Shs 4,000 at par. MCL's shares currently trade at a premium of 25% and the company has a gearing position of 2:3 and an equity beta of 1.05.

At its recently concluded Board meeting, it was resolved that the company should further evaluate the viability of expanding its operations to production of hand sanitizers given the ever increasing demand for the product as the COVID-19 pandemic rages on with no end in sight. Some members were however concerned that if the pandemic ended soon, Ugandans could revert to their old way of not sanitizing hands leading to a waste of the investment.

With the expansion estimated to cost Shs 1.5 billion, some board members were happy to learn that the base-case NPV of the project had been estimated at a positive of Shs 32 million. Some other members were however surprised that NPV had been determined without reference to the financing options to be used, and that there was no guidance to the Board on how the financing options should be arrived at. Nonetheless, the Board proposed that the said expansion be financed by 60% debt and 40% equity. This was partly influenced by the information that MCL's bankers are willing to offer a 4-year bullet loan at a subsidised cost of 10% per annum although MCL's pre-tax cost of debt stands at 15% per annum.

Additionally, the Board has also advised that a rights issue of 1 for every 3 shares be made to generate equity finance since the company's shares are so defensive to the extent that they can only appeal to the existing shareholders. The rights issue is however projected to involve administration and underwriting costs of 5% of the gross amount raised and these costs are not tax allowable.

MCL pays an annual corporation tax at a rate of 30% payable in arrears. Companies in the hand sanitizer industry have an average debt/equity ratio of 1:2 and an average equity beta of 1.25. The current return on treasury bills stands at 8% per annum while the return on the market portfolio averages to 20% per annum.

Required:

(a) Advise MCL on the discount rate that should have been used in the base-case NPV and the considerations to be made in arriving at the financing options.

(7 marks)

(b) Evaluate the investment using the Adjusted Present Value (APV) technique.

(8 marks)

(c) Discuss the causes of financial distress in organisations and suggest measures to mitigate financial distress.

(6 marks)

(d) Discuss the relationship between the dividend and financing decisions of an organization.

(4 marks)

(Total 25 marks)

Question 4

Prestige Recreational Centre (PRC) was established in Uganda in 2016 to serve as a leisure facility for a wide range of customers ranging from low income earners to high income earners. The facility has become so famous recently on account of its wide range of amenities that attract many customers. Recently, management resolved to expand this facility by setting up three (3) new projects namely; Gym, Swimming pool and Sauna. Accordingly, management allocated Shs 750 million to finance the proposed projects with each project set to cost 50% of the capital funds available.

Management has also projected that the return from each project will depend on the state of the weather in Uganda with three (3) seasons expected to occur namely; summer, winter and autumn. The respective probabilities and specific returns of individual projects are set out below;

Season	Probability	Returns (%)		
		Gym	Swimming pool	Sauna
Summer	0.40	16	25	12
Winter	0.40	20	-5	15
Autumn	0.20	14	17	18

Required:

(a) Advise PRC on the above investment projects basing on portfolio theory analysis.

(17 marks)

(b) Discuss the role of commercial banks in the financial system of economies like Uganda.

(8 marks)

(Total 25 marks)

Question 5

Comfort Homes Uganda Limited (CHUL) deals in production and supply of ceramic tiles in Uganda since 2012. CHUL wants to expand its operations to Rwanda in an attempt to increase its profitability and regional presence. The expansion to Rwanda will require establishing a new production plant to ensure increased production of ceramic tiles in order to match the expected increase in sales. Accordingly, CHUL has resolved to finance this expansion by acquiring a 15% term loan of Shs 10 billion from Pakasa Commercial Bank (PCB) payable in 60 months. CHUL expects that the expansion to Rwanda will increase the company's fixed costs by 8%, total variable costs by 12% and total revenue by 25%. CHUL pays corporation tax at a rate of 30% per annum.

The extracts from CHUL's statements of profit or loss and financial position before the proposed expansion are as follows;

Statement of profit or loss for the year ended 30 June 2021;

	Shs 'million'
Revenue	127,200
Cost of sales (variable costs)	(94,700)
Gross profit	32,500
Fixed operating costs	(26,400)
Profit before interest & tax	6,100
Finance cost	(1,200)
Profit before tax	4,900

Statement of financial position as at 30 June 2021;

	Shs 'million'
Assets:	
Non-current assets	
Property, plant and equipment	47,600
Goodwill	2,400
Current assets	24,500
Total assets	74,500
Equity and liabilities:	
Ordinary shares of Shs.10,000	12,400
Share premium	2,700
Preference share capital	5,600
Revenue reserves	9,900
Noncurrent liabilities	
20% term loan (4 years)	26,400
18% 5-year loan note	12,200
Current liabilities	5,300
Total equity and liabilities	74,500

Required:

(a) Assess CHUL's financial and operating gearing positions;
   (i) Before the proposed expansion. **(6 marks)**
   (ii) After the proposed expansion. **(5 marks)**

(b) Discuss the forms of market efficiency and their implications to investors and companies in Uganda. **(14 marks)**

(Total 25 marks)

TEST PAPER 11
CPA (U) DECEMBER 2021

Question 1

Optiplex Technologies Limited (OTL) was incorporated in Uganda on 1 July 2011 as a company limited by shares. The company sells laptop and desktop computers, for which it has authorized dealership agreements with its suppliers. OTL's major supplier, Smart Compulab Industries Inc (SCI), is a laptop manufacturing company based in Mauritius. OTL and SCI have enjoyed cordial business relations for the last 5 years.

The market prospects for laptops on the Ugandan market have increased overtime, largely because most companies are procuring the products to equip their employees to work off-site (outside business premises). This is being done as part of the measures to combat the spread of COVID-19 disease which started in China and spread throughout the world, culminating into declaration as a pandemic in early 2020, by the World Health Organization (WHO).

The proprietors of SCI have business interests in several sectors and are seeking to dispose of SCI as a going concern to enable them concentrate on other businesses, which are deemed more lucrative. They are considering selling SCI to OTL and this offer has been communicated to OTL's Board of Directors. The proprietors are waiting for a "no objection" from OTL so that other formal procedures can be finalized.

OTL directors are excited about SCI's offer as it is within their strategic objectives of expansion through foreign direct investments (FDIs) over the next four years. The Board has instructed the Managing Director OTL to carry out a thorough investment appraisal on the FDI basing on a four-year period and present the report at a special Board meeting, which will be scheduled as soon as the evaluation is ready. The Board has further directed the management team to ensure that the acquisition is handled in a transparent manner to avoid any issues of bribery, which the company has been grappling with in its procurement activities. If the deal succeeds, SCI will become a subsidiary of the OTL Group.

Highlights from SCI's offer indicate that the acquisition price is USD 6 million. In the first year after the acquisition, SCI expects to sell 60 laptops per week. The unit selling price of a laptop is USD 1,400. Sales revenue is projected to grow by 10% per annum starting from year 2. The total cost of materials and labour are expected to be USD 1.5 million in the first year, and these are expected to increase at the same rate with sales.

Fixed costs are estimated to be USD 300,000 in the first year and are projected to increase at a rate of 6% per annum from year 2 onwards. Additional working capital requirement will be 10% of revenue, which will be injected at the start of each year. This is expected to continue beyond the four year period being evaluated. It is assumed that the purchase of SCI will be executed when the spot exchange rate is Shs 3700 per US Dollar. The Uganda shilling is expected to depreciate in line with the annual inflation rate of 5%. OTL's weighted average real cost of capital of 14%. The evaluation of SCI's viability is expected to be in money terms. OTL has adequate equity funds to undertake the acquisition.

In another development, OTL has budgeted Shs 300 million for local investments during the year 2022. Three independent projects, code-named A, B and C, are being assessed. Project A has a net present value of Shs 100 million and requires an outlay of Shs 200 million. Project B requires Shs 190 million and is projected to yield net cash flows of Shs 80 million over a period of 4 years with a scrap value of Shs 15 million. Project C requires an outlay of Shs 150 million and has NPV of Shs 95 million. These figures are in real terms.

Directors are of the view that the local projects which meet the selection criteria should be financed using appropriate Islamic financing products. Corporation tax is 30% payable one year in arrears. Capital allowances are claimable at 25% reducing balance. Uganda has a double taxation agreement with Mauritius.

The Managing Director of OTL has contacted you, as a consultant, to evaluate and advise OTL on the planned FDI and local projects mentioned above.

Required:

Prepare a report to the Managing Director OTL, including the following;

(a) Evaluation of the proposed Foreign Direct Investment (FDI) using net present value technique. **(20 marks)**

(b) Discussion of the factors that may hinder the success of the planned FDI after acquisition. **(4 marks)**

(c) Appraisal of the local projects A, B and C using profitability index technique, assuming that the projects are;
   (i) Divisible **(5 marks)**
   (ii) Indivisible. **(3 marks)**

(d) Types and causes of capital rationing in the investment process. **(8 marks)**

(e) Distinguishing characteristics of Islamic and conventional modes of finance. **(6 marks)**

(f) Potential impact of bribery on an entity like OTL. **(4 marks)**

(Total 50 marks)

Question 2

Wesley Enterprises Limited (WEL) is a private company engaged in production of furniture. The company has a debt to equity ratio of 5:2. WEL is considering diversification of its business by investing in manufacturing of stationery products whose market appears to have a lot of untapped potential. The new investment will require a total of Shs 500 million, which will be raised using debt and equity within the existing capital structure. Corporation tax is 30% and corporate debt, which is assumed to be risk free, is at 13% per annum.

The information below has been compiled to guide management in assessing the planned project.

State of the Economy	Probability	Returns for WEL (%)	Returns for Stationery (%)	Returns on the Market (%)
Recession	0.25	16	17	21
Depression	0.15	12	14	16
Recovery	0.20	17	18	20
Boom	0.40	21	23	20

The Finance Director has requested you to analyse the financial securities above and advise him accordingly.

Required:

(a) Evaluate the suitability of the planned investment using;

(i) Covariance analysis

(6 marks)

(ii) Correlation analysis

(6 marks)

(b) Compute WEL's cost of equity using the Capital Asset Pricing Model (CAPM) and discuss the model's underlying assumptions.

(13 marks)

(Total 25 marks)

Question 3

Generations Construction Services Limited (GCS) is a Ugandan company that is listed on the Kampala Stock Exchange. The company does construction work, focusing on roads, houses and bridges. Three new members have been appointed to the Board of Directors to replace those whose tenure expired recently. A series of activities has been planned as part of the induction process for the new Directors, which will run for two weeks. Many facilitators have been

identified to deliver presentations during the induction program. Key among the facilitators will be GCS Director for Finance, who will give an overview of key finance concepts and performance highlights for the previous year as documented in the Annual Report.

GCS annual report indicates that its net assets grew by 15% from Shs 15 billion in 2020 to Shs 17.25 billion in 2021 while net profit before tax increased by 20% from Shs 7 billion over the same period. The company's current market price per share is Shs 15,000. The company has been paying a constant dividend per share since incorporation, but due to the good and consistent financial performance, an annual dividend growth rate of 3% has been approved by the Board, effective 2021. GCS's cost of equity is 14%.

The Director Finance has requested you to draft for him a presentation which he will deliver in the upcoming Board induction training.

Required:

As a Finance Officer at GCS, prepare a draft presentation for the Director Finance, including the following;

(a) Discussion of the nature and role of financial markets in the Ugandan economy. **(8 marks)**

(b) Demonstration of an understanding of;

(i) Primary and secondary markets **(4 marks)**

(ii) Forms of equity and debt finance **(6 marks)**

(c) Computation of the dividend payable for the year 2021 and advice on the forms in which this dividend may be settled. **(7 marks)**

(Total 25 marks)

Question 4

Executive Fruit Enterprises Limited (EFEL) was incorporated in Uganda as a company limited by shares, on 1 January 2014, with issued share capital of Shs 1.8 billion. The company grows fresh fruits and sells them both locally and abroad. For the year ended 31 December 2020, EFEL registered a profit after tax of Shs 250 million. The company wishes to set up a juice processing factory as part of its expansion strategy.

EFEL is planning to apply for listing on the Kampala Stock Exchange (KSE), which will enable it to raise a sizeable portion of the funds required to finance the proposed project. Boston Agribusiness Enterprises Ltd (BAE), a company which is similar to EFEL in most material respects, is listed on the KSE and has a price-

earnings ratio of 18. EFEL wishes to value its business as part of the listing requirements. The company's financial position as at 30 June 2021 is indicated below.

		Shs '000'
Non-current assets		
Land and buildings		1,500,000
Property, plant and Equipment		200,000
Motor vehicles		800,000
Goodwill		85,000
		2,585,000
Current Assets		
Inventory	100,000	
Trade Receivables	70,000	
Short-term investments	100,000	
Prepayments	30,000	
Cash	300,000	600,000
Total Assets		3,185,000
Equity and Liabilities		
Share capital (Shs 10,000 par value)		1,800,000
Retained Earnings		1,150,000
Non-current liabilities		
10% Bank loan		60,000
10% Preference shares (Shs 10,000 par value)		40,000
Deferred tax		20,000
Current liabilities		
Trade payables	100,000	
Tax payable	5,000	
Proposed dividend	10,000	115,000
Total equity and liabilities		3,185,000

According to financial records, 4% of trade receivables have been uncollected for over 3 years. The Board has resolved to write them off as bad debts. Goodwill doesn't have a ready market; the value of the short-term investment has declined by 3% due to underlying interest rate movements. Property, plant and equipment is impaired and has to be written down by Shs 25 million. 4% of inventory has expired.

Required:

Write a report to the Board of Directors EFEL, consisting of the following;

(a) Computation of the value of EFEL and advise thereon, using;

(i) Net asset valuation technique.

(6 marks)

(ii) Price to Earnings (P/E) ratio.

(4 marks)

(b) The role of corporate restructuring in corporate finance.

(8 marks)

(c) Discussion of techniques of addressing risks in investment appraisal.

(7 marks)

(Total 25 marks)

Question 5

Mercury Technologies Group (MTG) is a private software company incorporated in France, with several subsidiary companies outside France, including Mercurex Computers Limited based in Uganda. MTG collaborates with Kingdom Tea Producers (KTP), a Ugandan company, which has a branch in France. MTG and KTP are working on arrangements to further strengthen their collaboration in France and Uganda respectively. It is envisaged that both companies will benefit from brand presence and the ensuing capital flows to their countries which will enhance performance of their entities. In particular, KTP is seeking to increase its sales so as to meet shareholder expectations including payment of stable dividends. Some members of the senior management team need sensitisation on these matters, considering that the majority do not have a finance background.

Required:

As the Finance Manager of KTP, prepare a presentation to senior management, highlighting the following;

(a) Discussion on how MTG and KTP can hedge against foreign currency risk using options, swaps, and futures.

(12 marks)

(b) The role of international capital flows to an economy. **(8 marks)**

(c) The relevance of dividend decision according to;

(i) the traditional school of thought. **(2 marks)**

(ii) Modigliani and Miller (M&M) **(3 marks)**

(Total 25 marks)

TEST PAPER 12
CPA (U) MARCH 2022

Question 1

Jubilation Finance Limited (JFL), a private financial services company located in Serene District in eastern Uganda, was incorporated on 1 July 2001. JFL's core business is money lending, mainly targeting salaried employees as well as small and medium enterprises (SMEs) in the region and beyond. The chairman Board of Directors (BOD), Mr. Best Meliisa, is also the regional vice chairman of the ruling political party, a position he has held since his party was legally registered, some ten years back. Mr. Meliisa was elected to the position of chairman BOD because of his ability to link the company with the central government for partnership in implementing government programmes, such as the *Operation Wealth Creation (OWC).* JFL has benefited from such partnerships in that it obtains low cost OWC funds for onward lending to clients at reasonable profit margins, which has enabled the company to grow over the years. Financial statements for the year ended 31 December 2021 indicate a profit after tax of Shs 10 billion and net assets of Shs 300 billion.

At the Annual General Meeting (AGM) held on 20 February 2022, Mr. Meliisa highlighted his key achievements for the period, among them being that he convinced the Minister of Finance to double OWC funds allocated to JFL. He also informed members that the next cycle of grass root general elections was fast approaching and the roadmap for election activities had recently been published by the Independent Electoral Commission (IEC). He passionately convinced members to pass a resolution to contribute 10% of JFL's profit after tax towards the ruling political party's activities in the region. However, a few members were of the view that the company shouldn't participate in partisan politics to avoid potential risks that may arise from political regime change in future.

Another agenda item at the AGM was to consider a BOD resolution to upgrade JFL to a Micro-Finance Deposit Taking Institution (MDI) in 5 years' time. In this regard, it was decided that the company would strive to enhance the asset base as it prepares to apply for the MDI license from Bank of Uganda. In this regard, the finance department is required to identify and evaluate strategic projects worth up to Shs 90 billion and report to the BOD within one month. Shareholders are expected to raise 60% of this money in order to maintain the capital structure. Borrowings are secured at a risk-free rate of 12% and the stock market's average return is 15%. JFL's equity beta is 1.43. It is also worth noting that one of JFL's bankers rolled out Islamic banking products sometime last year.

JFL has identified three projects in the manufacturing sector, code-named A, B and C. The sector has equity beta of 1.32 and average equity financing of

40%. Project A requires initial outlay of Shs 46.7 billion and is expected to generate annual cash inflows of Shs 10.1 billion in perpetuity, effective year 2.

Project B requires an initial outlay of Shs 52.3 billion and is expected to generate annual profit of Shs 13.9 billion with a residual value of Shs 5.7 billion.

Project C requires Shs 36.9 billion and is expected to generate annual cash inflows of Shs 13.5 billion.

All the three projects are independent of each other and only project A is indivisible. Adjustments for tax have already been done. Projects B and C have a similar lifespan of 3 years. None of the projects will be repeated.

Required:

As Head of Finance at JFL, prepare a report to the Board of Directors, including the following;

(a) The stages of capital budgeting process and the role of the Board in such a process.

(6 marks)

(b) Computation of the cost of capital to apply in evaluating the projects.

(5 marks)

(c) Evaluation of projects A, B and C using Profitability Index technique. Clearly state your advice and any assumptions made.

(14 marks)

(d) Validity of Profitability Index technique in investment appraisal.

(4 marks)

(e) Sensitivity analysis of the most viable project to its initial outlay and cost of capital**.**

(8 marks)

(f) Discussion of risk adjusting techniques in investment appraisal.

(4 marks)

(g) Discussion on how *Ijara, Wakala and Tawarruq* Islamic financing structures can be applied to finance a business like that of JFL.

(6 marks)

(h) Comment on the resolution made at the AGM to donate 10% of JFL's profit to facilitate activities of the ruling political party.

(3 marks)

(Total 50 marks)

Question 2

Joyous Electronics Limited (JEL), is a listed company dealing in a variety of electronics. The company has maintained robust growth in its financial

performance and position. JEL reported a profit after tax of Shs 900 million for the year ended 31 December 2021, which represents an increase of 8% from the previous year; while its net worth was Shs 9 billion, reflecting a 5% growth over the previous year. Over the last five years, the dividend growth rate has remained stable at 6% per annum. The average return on treasury bills is 5% and the average return on the stock market 15%.

JEL intends to expand its business by taking over Brinco Enterprises Limited (BEL), which is in the same industry. If the takeover succeeds, BEL will constitute 30% of JEL under the new arrangement. It is envisaged that the takeover will not adversely affect JEL's minimum required rate of return of 10% on its investments.

The Finance Director of JEL has recommended that the Capital Asset Pricing Model (CAPM) be adopted as the methodology to apply in assessing the BEL takeover proposal. One member of the management team has however raised a concern in regard to the methodology, noting that:

"….*I appreciate the fact that CAPM, as it is widely known, is a cornerstone of modern financial market analysis, studied as a dogma for analysts and executives at the business schools. Most finance directors use it to assess everything, from the viability of a new project to their cost of capital. Most stock market analysts consider it an essential tool. But it has faced criticism in recent years as unworkable in the real world, even from luminary market academics such as Harry Markowitz who laid the groundwork for CAPM with research in 1950s on efficient market hypothesis. What if we consider alternatives such as Arbitrage Pricing Theory - APT? You have also not made any mention of how the capital and security market lines will provide guidance on how to arrive at the final investment decision".*

Management has however instructed the Director Finance to proceed with the assessment of BEL, and then circulate the report for consideration and also to clarify the concerns about CAPM. The Finance Director has collected the information below and given it to you, as the Finance Manager, to assist him accomplish the assignment.

	State of the Economy				
	Normal	Boom	Recession	Depression	Recovery
Probability	0.40	0.20	0.10	0.10	0.20
Returns on the market (Shs '000')	67,000	75,000	50,000	45,000	50,000
Returns for JEL (Shs '000')	62,000	80,000	65,000	50,000	54,000
Returns for BEL (Shs '000')	81,000	85,000	82,000	70,000	75,000

Required:

(a) Estimate JEL's expected returns, after the takeover, using CAPM and advise the Finance Director accordingly.

(12 marks)

(b) Discuss the limitations of CAPM in investment analysis and why arbitrage pricing theory may be considered a more superior methodology.

(7 marks)

(c) Describe the capital and security market lines discussing their relevance in investment analysis.

(6 marks)
(Total 25 marks)

Question 3

Autostrade Uganda Limited (AUL) is a listed company that deals in automobiles. The company intends to enlist for dealership of three motor vehicles which will be launched in a month's time by one of the leading vehicle manufacturing companies in Europe. The vehicles are Quickshepherd (QS), Superpathfinder (SP) and Superwagon (SW).

The Managing Director (MD) has contacted you, as a consultant, to assess the prospects of the three vehicles and provide technical advice on this business opportunity. Your advice will guide him in compiling a report, which he will share with the Board of Directors at their next meeting. The motor vehicles which will be found acceptable will be considered and approved by the Board in furtherance of AUL's business growth strategy. The MD has given you the estimates below to use as your starting point.

State of Demand	Probability	Net Present Value of Projected Returns Shs '000'		
		Vehicle QS	Vehicle SP	Vehicle SW
High	0.30	850,000	900,000	1,300,000
Medium	0.50	1,650,000	500,000	1,230,000
Low	0.20	820,000	1,200,000	300,000

It has been AUL's practice to finance business using equity unless all equity sources are exhausted. Management has come to you, the financial consultant for advice.

Required:

(a) Advise AUL on the appropriate course of action in regard to the prospective dealerships. *Use the concept of expected returns*.

(7 marks)

(b) Discuss any **five** factors that AUL should consider in building its investment portfolio.

(5 marks)

(c) Evaluate the validity of AUL's practice of financing business growth using equity.

(5 marks)

(d) Discuss the regulatory framework for money and capital markets in Uganda and the role of capital markets in the development of an economy.

(8 marks)
(Total 25 marks)

Question 4

Greenix Investment Limited (GIL) is a Ugandan real estate company that buys large chunks of land and sub-divides them into smaller plots which are sold at competitive prices. The company has several housing estates in the central region which has boosted the real estate sector. GIL is now seeking to expand its business by increasing its product lines.

Management has run announcements that GIL intends to start hardware shops where their customers would access high quality construction materials at relatively low prices. Following the announcements, the proprietor of Nabunya Hardware Limited (NHL), a hardware business which operates in a number of GIL's housing estates, has submitted their expression of interest to sell NHL to GIL if offered an attractive price. Included in the expression of interest are NHL's consolidated financial statements and analysis for the year ended 31 December 2021, from which the information below has been extracted.

	Shs 'million'
Assets:	
Plant, property and equipment (PPE)	4,300
Investments	1,600
Goodwill	500
Current Assets	11,100
Total Assets	17,500
Equity and Liabilities:	
Share capital (Shs 1,000 par value)	11,600
15% Preference share capital (@Shs 100 par value)	450
Loans	1,000
12% Debentures	900
Current Liabilities:	
Trade payables	2,515
Interest payable	175
Tax payable	90
Bank overdraft	35
Other current liabilities	735
Total Equity and Liabilities	17,500

The figure for PPE includes a delivery truck, whose net book value is Shs 100 million. It has been established by an independent valuer that this figure is higher than the realisable value by Shs 20 million. 95% of the investments' value will be recovered. Efforts to attach a market value to goodwill have proved futile and this has been exacerbated by the planned sale of NHL. Current assets include receivables worth Shs 3.5 billion of which 0.7% has since been classified as bad debt. Kampala Revenue Authority, the local tax collection statutory authority, has advised that the NHL's tax payable figure was understated by Shs 19 million.

Required:

(a) Advise GIL on the share value of NHL and on the way forward.
(8 marks)

(b) Discuss the circumstances under which company valuation in corporate finance is necessary and the most appropriate approach in each case.
(7 marks)

(c) Assess the suitability of takeovers as an expansion strategy for GIL.
(5 marks)

(d) Discuss the measures that GIL should take into consideration in order to remain financially afloat in the face of the COVID-19 pandemic that recently ravaged the world.
(5 marks)
(Total 25 marks)

Question 5

Watsa Enterprises Limited (WEL), is a Ugandan textile manufacturing company. The company recently inaugurated a new Board of Directors (BOD) and an induction workshop is being organised for the members. The Finance Manager has been lined up as one of the facilitators, mainly to acquaint the new Board members with key finance concepts that will be crucial in the execution of their duties. Indeed, some of the new Board members don't have any finance or accounting background.

In the week that preceded the Board's inauguration, the Central Bank held a press conference to release the Monetary Policy Statement for the month. While delivering his remarks at the press conference, the central bank Governor expressed frustration over failure of financial institutions to reduce lending rates in spite of the several appeals he had made to them in the past. This generated debate in the public domain on the rationale for liberalisation of Uganda's financial system, if nobody seems to have the mandate to reign on such a critical macroeconomic variable in public interest. The debate has also escalated to questioning the central bank's ability to manage the yield curve, the high fluctuation in foreign exchange rates, and lack of viable tools by companies to manage interest rate risks.

The finance manager has requested you, the finance officer, for contribution to his presentation.

Required:

Prepare notes to the finance manager including the following;

(a) Analysis of the reasons behind high lending interest rates in Uganda compared to other countries in the East African region.

(5 marks)

(b) Discussion of the factors that determine the shape of the yield curve.

(6 marks)

(c) Discussion of the factors responsible for high foreign exchange rate fluctuations in Uganda.

(6 marks)

(d) Application of the forward rate agreements and interest rate futures in managing interest rate risk.

(8 marks)

(Total 25 marks)

Answers

ANSWERS TO TEST PAPER 1
CPA (U) NOVEMBER 2017

QUESTION 1

The case study of Medicines and Systems Limited - MSL

1(a) Causes and implications of capital rationing

Meaning of capital rationing

Capital rationing is the process of allocating capital to projects where there is insufficient capital to fund all value adding projects.

Causes of capital rationing:

Capital rationing arises either because the firm cannot obtain funds at market rates of return (**hard capital rationing**) or because of internally imposed financial constraints by management (**soft capital rationing**).

Hard capital rationing is the term applied when the restrictions on raising funds are due to causes external to the company. For example, potential providers of debt finance may refuse to provide further funding because they regard a company as too risky.

- This may be in terms of financial risk, for example if the company's gearing is too high or its interest cover is too low, or in terms of business risk if they see the company's business prospects as poor or its operating cash flows as too variable.
- In practice, large established companies seeking long-term finance for capital investment are usually able to find it, but small and medium-sized enterprises will find raising such funds more difficult.

Soft capital rationing refers to restrictions on the availability of funds that arise within a company and are imposed by managers. There are several reasons why managers might restrict available funds for capital investment.

- Managers may prefer slower organic growth to a sudden increase in size arising from accepting several large investment projects. This reason might apply in a family-owned business that wishes to avoid hiring new managers.
- Managers may wish to avoid raising further equity finance if this will dilute the control of existing shareholders.
- Managers may wish to avoid issuing new debt if their expectations of future economic conditions are such as to suggest that an increased commitment to fixed interest payments would be unwise.
- One of the main reasons suggested for soft capital rationing is that managers wish to create an internal market for investment funds. It is suggested that requiring investment projects to compete for funds means that weaker or marginal projects, with only a small chance of success, are avoided. This allows a company to focus on more robust investment projects where the chance of success is higher. This cause of soft capital rationing can be seen as a way of

reducing the risk and uncertainty associated with investment projects, as it leads to accepting projects with greater margins of safety.

Note that **single period** rationing arises when restraints are imposed for a single period while **multi-period rationing** arises when the restraints are for over one period.

Implications of capital rationing:

- There is need to reconcile between stable growth and fluctuating growth; therefore MSL management needs to know the strategy they are pursuing.
- Risk averse nature of management: MSL management must define the level of risk appetite that the company should pursue;
- Perception of the firm by the market – MSL needs to know that the market may misinterpret capital rationing decisions, by thinking the company is in financial difficulties.

1(b)(i). Asset replacement cycle – most appropriate option:

The information in the case study points to two options of after every 3 or 4 years. The equivalent annual costs need to be computed and compared.

Replacement cycle – of every 3 years:

Period	Description	Amount	Residual value	Net cash	DF	PV
Year 0	Purchase cost	(420)		(420)	1.000	(420)
Year 1	Maintenance - Yr 1	(110)		(110)	0.877	(96)
Year 2	Maintenance - Yr 2	(125)		(125)	0.769	(96)
Year 3	Maintenance - Yr 3	(145)	200	55	0.675	37
Net present value of cost						(575)
3-year annuity factor						2.321
Equivalent annual cost (EAC) of the 3-year replacement cycle						**(248)**

Replacement cycle – of every 4 years:

Period	Description	Amount	Residual value	Net cash	DF	PV
Year 0	Purchase cost	(420)		(420)	1.000	(420)
Year 1	Maintenance - Yr 1	(110)		(110)	0.877	(96)
Year 2	Maintenance - Yr 2	(125)		(125)	0.769	(96)
Year 3	Maintenance - Yr 3	(145)		(145)	0.675	(98)
Year 4	Maintenance - Yr 4	(170)	130	(40)	0.592	(24)
Net present value of cost						(734)
4-year annuity factor						2.913
Equivalent annual cost of the 4-year replacement cycle						**(252)**

Comparing the equivalent annual costs (EACs) of the 3 and 4-year asset replacement cycles, it is recommended that the trucks be replaced every three years. This is because the 3-year EAC is lower, i.e. has a cheaper equivalent annual cost.

1(b)(ii). Selection between *Aces* and *Bays* systems

Given that the projects have unequal life spans, the approach is to estimate equivalent annual benefits and compare the two options; whichever offers the higher benefits should be adopted or preferred to the other.

Estimation of equivalent annual benefits – *Aces*

	Cash flows	DF @ 14%	PV
Initial investment	(600)	1.00	(600)
Inflows - year 1	250	0.877	219
Inflows - year 2	300	0.769	246
Inflows - year 3	360	0.675	243
Net present value			**93**
Annuity factor for 3 years			2.322
Equivalent annual benefit			**40.5**

Estimation of equivalent annual benefits – *Bays*

	Cash flows	DF @ 14%	PV
Initial investment	(500)	1	(500)
Inflows - year 1	180	0.877	158
Inflows - year 2	210	0.769	161
Inflows - year 3	230	0.675	155
Inflows - year 4	250	0.592	148
Net present value			**123**
Annuity factor for 4 years			2.914
Equivalent annual benefit			**42**

Recommendation:
Considering the equivalent annual benefits of the two projects, it is recommended that MSL adopts the *Bays* system as it offers a higher equivalent annual benefit.

1(c). Limitations of the EAC analysis:

a) The maintenance costs are **assumed to occur at year-end** – but this is unrealistic given that the trucks are maintained throughout the year.

b) The analysis **ignores inflation**; inflation will imply that the costs will change from year to year – yet the assumption is that costs remain the same indefinitely.

c) The analysis **ignores taxation**; asset acquisitions come with tax allowances of different magnitude – which are not accounted for in the analysis above.

d) The analysis ignores the fact that **needs of the organization change** with time; it is unlikely that the same model of the machine will be required year after year – given that there is growth and changing customer needs/ preferences.

e) The analysis assumes that **machines will be the same year after year** – yet new models are invented or improved with time – which many times comes with an additional cost.

Nonetheless, the methodology can be used to estimate the higher value-adding option within a set of options and given assumptions.

1(d). Selection of investments among P, Q, R and S

There is capital rationing in the circumstances and the projects are divisible, and this means MSL should give priority to the most profitable projects until the funds are exhausted. The ranking can be determined based on the profitability index (PI) of each investment.

We however need to determine the net present value of Project S then the PI of each project then have them ranked;

Determination of the NPV of Project S:

	Yr 0	Yr 1	Yr 2	Yr 3	Remarks
Investment	(2,500)				
Cash flows		400	1,400	1,800	
Working capital		(100)	(100)	200	
Scrap value				500	Being 20% of the initial cost
Proportion of R&D	-	-	-	-	This a sunk cost - to be ignored
Total cash flows	(2,500)	300	1,300	2,500	
Discount factor	1.000	0.877	0.769	0.675	
Present value	(2,500)	263	1,000	1,688	
Net present value	450				

Project PIs and rankings and fund utilisation:

Project	NPV	Total PV[1]	Initial invest	PI	Rank	Amount
P	121	3,121	3,000	1.04	4	-
Q	103	1,603	1,500	1.07	3	500
R	410	2,410	2,000	1.20	1	2,000
S	450	2,950	2,500	1.18	2	2,500
						5,000

[1] This is the present value of the total cash flows of the project, in this case equal to NPV + initial investment

Conclusion:

The selection of the projects should be according to the ranking above i.e. R first, followed by S, and the one-third of project Q.

1(e). Principles of Islamic finance (IF) and limitations of local IF

Principles of Islamic finance – interest free and profit sharing

Islamic finance is based on Shariah law; shariah low prohibits charging of interest (riba). As such, it promotes the sharing of risks and rewards of an asset-based venture – such as sharing of profits. Any transaction outside this arrangement will not be within the law.

Interest free

Islamic banking is interest-free, meaning that all banking business and activities must prima facie be free from any element of interest. In Islamic law, interest can arise when there is an exchange of two similar usurious items or assets such as money for money or main food for main food. In banking, the leading practice from which interest originates is the exchange of money for money, that is, money lending. Modern banking is based on the lending of money for a premium – interest. Islamic banks must eliminate interest in all its forms, be it in cash or kind.

The prohibition on paying or receiving fixed interest is based on the Islamic tenet that money is only a medium of exchange, a way of defining the value of a thing; it has no value in itself, and therefore should not be allowed to give rise to more money, via fixed interest payments, simply by being put in a bank or lent to someone else

Profit and loss sharing

Profit and loss sharing is possible in some Islamic banking activities. The bank will share the profit made with its customers either on a proportionate basis or on an agreed profit sharing ratio. In the case of a loss, the loss will be borne by the bank under a Mudarabah contract or by both parties proportionately in the case of a Musharakah contract. This concept is in direct contrast to fixed-income-based products. Again, the concept of profit and loss sharing is peculiar to Islamic banking although, strictly speaking, Islamic banking is not an equity market, which is normally represented by the stock market.

The concept of profit-and-loss sharing in an enterprise, as a basis of financial transactions is a progressive one as it distinguishes good performance from the bad and the mediocre. This concept therefore encourages better resource management.

Limitations of accessing Islamic finance locally

a. Islamic Finance as a financial services product is new in the country, was **recently introduced** in the country by amendments to the financial institutions Act 2004 in December 2015 – and this may mean:
   i. Not many financial institutions offer the service / product;
   ii. Awareness about its availability is still low;
   iii. Knowledge of how it operates is still low;
   iv. It may prove expensive in the short to medium term.

b. Capital **markets** on which long-term Islamic finance products would be offered are still **underdeveloped** or at least evolving;

c. Islamic finance thrives where Shariah law is followed, which is not the case in Uganda; Note that Uganda – whereas it is registered as an Islamic nation, it is dominantly a Christian country and Shariah law is not practiced in the country.

d. Not many companies and individuals keep **complete books of account** – which are necessary for the smooth operation of Islamic finance. This may mean that the basis for sharing of profits or losses may not be easily established or agreed – which may lead to disputes between the financial institution and the customer.

QUESTION 2

Strategic growth and expansion of woodhouse Limited

2(a). Analysis of the minister's statement on roles of capital markets

The minister was basically underscoring the **role of capital markets** in the development of the economy – like that of Uganda. He also argues that capital markets themselves have the **potential to propel Uganda** into a 'middle-income' economy by 2021. Transforming into middle-income status was promised by the Ugandan President as a target for his presidential term 2016-2021.

To evaluate the Hon Minister's statement, we can analyse the two main parts of his/her argument and give additional personal opinions on the extent to which the Minister is right or wrong / accurate or fair in financial management perspective.

The role of capital markets include:

A **capital market** can be **described** as a medium where medium to long-term finance can be raised. Capital markets offer a variety of financial instruments that enable agents to pool, price and exchange risk.

A capital market can be in the form of a **primary** market (when or where new securities are issued) or **secondary** (for secondary trading of already existing securities).

Capital markets play the following roles in an economy:

a. Capital markets facilitate the **raising of long-term funds** by the business community; without these markets, it would be difficult to accumulate large funds for large investments that attract economies of scale. This usually translates into **economic growth** through capital accumulation.

   In this sense, the Minister could be implying that the business community in the economy could then be able to raise funds for projects on any magnitude; however, the development of such projects would need to be supported by growth of real demand for their outputs – which can only increase over time.

   The more the number and size of local investors, the more likelihood of retention of profits with the economy (as opposed to paying of dividends to external investors); such profits can be re-invested for even faster growth.

b. In relation to a) above, capital markets provide an opportunity for the **public to invest their savings** in attractive securities – which they would otherwise not afford. For example, someone with Shs 1 million can invest in shares of a bank and become a part owner of large institution;

   In reference to the Minister's statement, this could imply that savings would more attractive and be used to generate more value for members of the public, who would with time increase their wealth and income – and hence the increasing income status. This may however not happen overnight or merely over the next 4 years.

c. Developed capital markets can **attract foreign investors**; such capital inflows will lead to faster growth of the economy.

   Foreign investments will drive growth of the economy and propel income growth and the road to middle income status.

d. Capital markets promote **creation of employment** opportunities – especially if companies that raise funds from these markets are able to expand in size and staff capacity.

   With more employment opportunities available to Ugandans, the faster the contribution to growth of industries, growth of aggregate demand, and the fater the journey to the middle income status.

e. Capital markets **create liquidity** where by securities can be converted into cash at a market price thus enabling the investor to have cash for other business ventures.

Growing from low income to middle-income status

- A middle-income country is any nation with per-capita gross national income between USD 1,036 to 12,615 (as per year 2012 World Bank standards). A

lower middle income nation has per-capita income of between USD 1,036 to 4,085, which is what the Ugandan President must have been thinking about.

- Uganda's per-capita income was estimated at USD 672.8 in the year 2015, having increased from USD 609.0 in the year 2010. This translates to an average annual growth rate of 2% per annum.
- For income to grow from USD 672.8 to 1,036 in 4 years, one needs to achieve an average income growth rate of 9%. This would be phenomenal, as no country has achieved this in the recent past leave alone Uganda. One can therefore argue that this is an over ambitious political statement.
- Given the president's growth equation included assumptions on oil production and sale, and heavy investment in physical infrastructure, capital markets alone – even if they grew to the level of those in developed economies, cannot guarantee transformation into middle-income status, and therefore the Hon Minister's statement is largely overrating the role capital markets.
- On the other hand, capital markets need to grow at the same rate with major sectors of the economy – such as infrastructure, education and skills, industrialization backed by demand, the export sector, financial services – so as not to hinder development if they are not playing their roles adequately as the economy grows.

2(b)(i). Factors to consider while selecting sources of finance

Financing can be in the form of **equity or debt**; or in the form of **short or long**-term; or can be considered as **internal or external** sources of finance.

While evaluating the different sources of finance, Woodhouse should consider:

a. The **cost of finance** (both the direct cost i.e. interest rate and the cost of issuing/raising the funds) to be added to the existing basket of funds; the lower the total cost the better as a lower cost leads to a higher value of the firm; firms should always evaluate the comparable costs of debt and equity.

b. Duration or **tenor of the funds/ projects**; the sources should be matched to their **uses**; for example a five-year project can be financed by a 5-year loan if can be arranged in the market.

c. Term **structure of interest rates** – whether there is a normal yield curve or otherwise will give direction to firms on the appropriate tenor of finances.

d. Woodhouse should evaluate its **level of gearing** – noting that debt may be cheaper but with increasing risk, additional borrowing can lead to an increase in the weighted average cost of capital (WACC).

e. **Accessibility** – some sources may be more available than others – which will therefore influence the selection. Accessibility also has to do with market liquidity at the time of raising the funds.

f. Terms and **conditions** of the alternative sources should be evaluated and their likely impact on strategic objectives of the firm. Some sources could be too restrictive (or even political) to the extent of derailing a firm from the initial objectives. The firm should therefore evaluate the likelihood of **interference** in decision-making process.

g. WL should also consider the **security requirements** of the various sources and the availability of such securities.

2(b)(i). Strategies to minimize cost of capital / maximize shareholder value

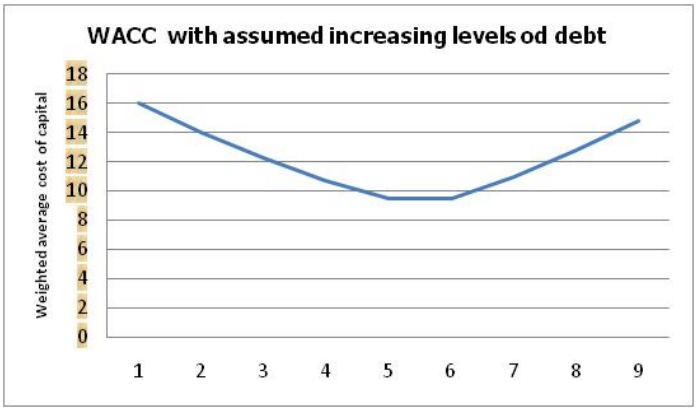
(i) Analysis of **the statement by the director of finance**

The director of finance targets to 'minimize cost of capital and thereby maximize shareholder value'.

Cost of capital refers to the **cost of funds** that a company raises and uses and the return that investors expect to be paid for putting funds into the company. Cost of capital is therefore the **minimum return** that a company should make on its own investments to earn cash flows out of which investors can be paid their return.

Cost of capital therefore combines both the cost of debt and cost of equity. Cost of capital can therefore be best looked at as the weighted average of the cost of the different sources – leading us to the weighted average cost of capital (WACC).

The WACC will initially go down with issuance of more debt, but will eventually start going up after a certain level of debt, and hence, firms may aim to operate at a level where the WACC is at its minimum as reflected below.



To minimize the cost of capital is a good strategy – as it means that providers of finance are being paid the least possible – an implication that more is saved by the company to meet other requirements including reinvestment in available growth opportunities.

It is also true that the lower the cost of capital, the higher the value of the company. For instance, if WL's free cash flows were Shs 10 billion and the cost of capital was 15% then the value would be Shs 66.7 billion; if the cost of capital reduced to say 14%, the value would be estimated at Shs 71.4 billion.

It therefore true that shareholders' value will be increased by reduction in the company's cost of capital.

However, shareholder value is a function of **more value drivers** besides cost of capital – such as **sales growth** and **investments in working and fixed capital** – and the finance director should not ignore them in value creation for the shareholders.

(ii) Strategies to **minimize cost of capital**

WL will need to design strategies around the following:

1. **Capital structure** – there is ideally a combination of debt and equity that will yield the lowest WACC basically as a result of managing the different aspects of risk. Companies can work to maintain the debt-equity combination around this level. Note also that the transaction cost of issuing new debt is cheaper than the cost of issuing new equity.
2. **Dividend policy** – the level of profit retention will influence the capital structure and hence the level of WACC. Besides, WL should not pay high dividends and then go into the market to issue new equity securities.
3. **Debt financing costs** – these can be lowered by (a) – always attracting the cheaper debt finance and (b) reducing the perceived credit risk by the lenders – given that the interest rate charged by lenders includes the risk premium of the borrower.
4. **Equity financing costs** – like debt, cost of equity incorporates a risk premium associated to a particular company – sometimes measured by beta (β). WL can reduce such a risk based on what raises it – say if it is caused by poor market segmentation that raises concerns on its future cash flows, a firm (WL) can have this corrected through proper market segmentation – or improved diversification.
5. Cost of capital can also be managed or reduced through **restructuring.** May involve converting some instruments; paying off some, reducing the cost of others; attracting cheaper additional funds.

QUESTION 3

3(a)(i). Practical considerations before declaring dividends

a. The needs of the investors/ shareholders.

Shareholders are the beneficiaries of the dividend declaration / dividend policy. Note that many small shareholders usually require a consistent or regular dividend, while institutional or large scale shareholders can balance between current and future dividends.

b. Contractual arrangements – say with creditors.

The firm should evaluate contractual arrangements say with lenders – as some loan agreements may have restrictions on dividend payments.

c. Liquidity position of the firm

Most dividends take the form of cash payments; whereas dividends are paid in cash, profits may not have been in cash but accruals. If declared dividends are not paid, it may give a wrong impression about the company.

d. Effects of inflation

Profit retention is needed to maintain the operating capacity of the company which may be eroded by inflation. Thus, dividend declaration should consider levels of inflation for the year.

e. Dividends as a signal to investors

MSL may consider the effect the dividend will have on shareholders – whether it will indicate the company's strength and future prospects; the signal may appear strong especially if the dividends are stable or growing.

3(a)(ii). Evaluation of alternative dividend policies

Profit retention rate	Workings	Marks
Retention at 0%	Market value is given by $P_o = D_o (1+g) / (r-g)$ Where: P_o = Market price of a share D_o = Dividends in Year 0 g = growth rate in dividends r = require rate of return In the case of TSL, the current dividend has not been paid so it will be added to the market value determined by Po formula to get the cum dividend value.	

Profit retention rate	Workings	Marks
	When retention rate is at 0%, dividend is 100%. • Dividend = Shs 3 bn, g – 0% and r = 15% P_0 = 3/15% = 20 bn The cum div market value = 20 + 3 billion. Therefore, market value is Shs 23 billion.	
Retention at 30%	When retention rate is 30%, dividend is at 70%. • Dividend = Shs 3 x 70% bn = 2.1 billion, g = 6% and r = 16% P_0 = 2.1/(0.16 -0.06) = 21 bn The cum div market value = 21 + 2.1 billion. Therefore, market value is Shs 23.1 billion.	
Retention at 50%	When retention rate is 50%, same amount is paid out in dividends. • Dividend = Shs 3 x 50% bn = 1.5 billion, g = 8% and r = 18% P_0 = 1.5/(0.18 -0.08) = 15 bn The cum div market value = 15 + 2.1 billion. Therefore, market value is Shs 17.1 billion.	

Conclusions:

The market value is therefore theoretically maximized at a retention rate of 30%.

The firm should therefore retain 30% of the earnings per annum in order to maximize shareholders' wealth.

3(b)(i). Assumptions used in dividend policy analysis

It is assumed that market **value of a company depends on the size of dividends** paid, the rate of growth in dividends and shareholders' required rate of return.

It is assumed that the **growth rate in dividends depends on the amount of money re-invested** and the rate of earnings retention. However there may be other business and economic environmental factors that will influence profitability and growth of the company from year to year – such as interest rates, inflation that will inflate operating expenses, and level of demand for the company's goods/ services.

It is also assumed that **shareholders want a dividend policy that maximizes the value of their shares**. This assumption is not always true as many shareholders may have preference for current dividend so that they use their money on other projects.

3(b)(ii) Applicability of the residual, traditional, and irrelevancy theories of dividend policy

Residual theory of dividend policy

The residual theory of dividend policy is that dividend can be paid only after all projects with positive NPV have been identified and invested in; dividends are paid as a residue.

Traditional view of dividend theory

The traditional view of dividend theory is such that the company should focus on the effect of the dividend on the share price. It therefore assumes that dividend matter to shareholders and will be paid to maximize share price.

- By MSL analyzing the effect of retention policy on growth and required rate of it return, it would appear that they are bent this theory to dividends.
- This theory is also applicable in developing markets, where shareholders are bent to demand consistent divided to meet their other needs.

The irrelevance theory.

This is the view advanced by Modiglian and Miller (MM), where they argued that in a tax-free world, shareholders are indifferent between dividends and capital gains, and the value of firm is solely determined by earning power of its assets and investments. And as such, a company would be indifferent between paying dividends and retaining earning given that if there is a shortage of fund for investments, the company would obtain them from the outside sources.

This argument s however limited in the sense that:

- The world is not tax-free
- Markets are not perfect
- Many companies always experience capital rationing from time to time
- Payment of dividends is easy while raising new finance may be slow and expensive.
- Information is not always available to all shareholders and equally.
- There is always preference for current dividends because the future is uncertain.

Conclusion

It can therefore be safely concluded that Ugandan firms should study the market and needs of their shareholders before concluding the dividend decision;

In developing markets like Uganda, dividends matter because of the market imperfections.

QUESTION 4

4(a). Relevance of correlation in portfolio formation

Correlation of returns refers to how returns on two or more investments co-relate or co-vary i.e. move up or down together. Such co-variability is measured either by covariance or correlation coefficient.

Investments can exhibit **positive** (if one does well – the other also does well and vice versa), **negative** (when one does well, the other is likely to do badly) or **no** correlation – where the returns exhibit independence of each other.

Correlation is relevant in that, investments with no or negative correlation will generally **reduce risk**.

An investor should therefore attempt to invest in securities with negative or no correlation in order to reduce risk. This however assumes that investors are risk averse.

4(b)(i). Evaluation of the portfolios H and P and limitations of CAPM.

The club members should select a portfolio that offers the largest **positive alpha**. An alpha value of a share or portfolio is a measure of its abnormal return – being the amount by which the share's return is currently above or below the required return relative to its systematic risk.

Note that the case study mentions that the correlation between the returns is negligible.

Expected return of portfolio H

Investment	Weight	Expected return	Expected R	Remarks
H-1	0.15	20%	3.00%	
H-2	0.35	22%	7.70%	
H-3	0.30	24%	7.20%	
H-4	0.20	26%	5.20%	
			23.10%	

Portfolio Beta of H

Investment	Weight	Beta	Portfolio beta	Remarks
H-1	0.15	0.6	0.09	
H-2	0.35	1.1	0.39	
H-3	0.30	1.2	0.36	
H-4	0.20	1.3	0.26	
			1.10	

The required return on portfolio H

= Risk free rate + ß (Return from market – Risk free rate).

= 12% + (20-12)% x 1.1

= 20.8%

Expected return of portfolio P

Investment	Weight	Expected return	Expected R	Remark
P-1	0.20	20%	4.00%	
P-2	0.30	22%	6.60%	
P-3	0.50	24%	12.00%	
			22.60%	

Portfolio Beta of P

Investment	Weight	Beta	Portfolio beta	Remark
P-1	0.20	0.9	0.18	
P-2	0.30	1.1	0.33	
P-3	0.50	1.2	0.60	
			1.11	

The required return on portfolio P

= 12% + (20-12)% x 1.11

= 20.88%

The Alpha table:

Investment	Expected return	Required return	Alpha value
Portfolio H	23.10%	20.80%	2.30%
Portfolio P	22.60%	20.88%	1.72%

Conclusion:

Given that portfolio H offers a higher Alpha value, it should be selected in preference to portfolio P. it means that portfolio H is currently offering a higher abnormal return and should be selected.

Limitations of CAPM in the context of HP Limited

The CAPM model states that $R_e = R_f + B(R_m - R_f)$

Where:

R_e = the cost of common stock or expected rate of return on equity;

R_f = expected risk free rate of interest

R_m = expected return on the market

B = beta, the measure of the firm's stock return to changes in the market's return

The model therefore provides the required return on a risky investment based on a linear model of risk, thereby providing a basis for pricing of an equity instrument eg a share.

The limitations of CAPM include the following:

a) CAPM is a single period model – and cannot be meaningfully applied beyond one period.

b) The model is based on an unrealistic assumption that the capital market is perfect. As such, all the following assumptions do not hold in the assumed Kikuubo Securities Exchange:
   - No individual dominates the market – the rich dominate markets due to income inequalities especially in developing countries like Uganda.
   - All investors are rational and risk-averse – with limited financial knowledge, many investors cannot be rational.
   - Investors have perfect information – there are deep financial information inequalities.
   - all investors can borrow or lend at the risk-free rate
   - That there are no transaction costs.

c) The risk free rate and the market return that are used in the model are fluctuating; meaning that when they move, an new calculation and therefore a decision should be made.

d) Beta factors used in the model are from historical data – which is a poor basis for predicting the future.

4(b)(ii). The adjusted present value (APV) of the project and reservations on the project

Adjusted present value = Base case NPV + present value of the tax shield.
In this case, base case NPV = NPV of cash flows using ungeared cost of equity.

Base case NPV
The project cost – or initial investment = Shs 1.5 billion.
The all-equity cost of capital is given as 18% per annum.
The annual cash flows = Shs 260 million in perpetuity.
The present value of these cash flows = Shs 260/.18 million = Shs 1,444 million
The net present value = Shs (1,444 – 1500) = negative 56 million.

The present value of the tax shield:
The cost of debt is given as 13% per annum.
The estimated debt = Shs 500 million
The annual interest cost = Shs 500 m x 13% = 65 million.
The tax shield = Shs 65 million x 30% = 19.5 million
The present value of the tax shield = Shs 19.5 m/.13 = 150 million

APV
APV = Shs ((56) + 150) million = 94 million.

Conclusion:

Given that this project has a positive APV, it should be accepted as it adds value to the investment club.

Unfortunately, because of the disparity between the information details in the Treasurer's and the Secretary's suggestions, we are unable to compare the two investments – which is however not the requirement of the question.

Caution to take regarding the proposed project by the Club Secretary

- It is usually not easy for small companies leave alone investment clubs to issue debentures – leave alone irredeemable debentures. Care should therefore be taken to evaluate the likelihood of success of the issue of the debenture.
- The complication in this regard is due to the fact debentures are debt instruments not secured by physical assets or collateral and are instead secured by the general creditworthiness and reputation of the issuer. The club may not have yet built such a reputation to warrant a successful issuance of such a debt instrument.
- The rate of instrument at 13% - which by nature is fixed, may be relatively high; such a long-term commitment to such a high rate may be detrimental to the overall financial objectives of the relatively young investment club.

QUESTION 5

5(a). The factors management should watch for to avoid financial distress

Financial distress defined

Financial distress is a term in corporate finance used to indicate a condition when promises to creditors of a company are broken or honored with difficulty. This is mostly due to either high fixed costs, illiquidity of assets, or reduction in revenues in situations of economic downturns or other internal or external causes.

Sometimes financial distress can lead to bankruptcy. Financial distress is usually associated with some costs to the company and these are known as Costs of Financial Distress. A common example of a cost of financial distress is bankruptcy costs.

Financial distress can also be described as a situation where obligations to creditors are not met, or met with difficulty.

Generally, the higher the level of debt, the higher the risk of financial distress. **Susceptibility** to financial distress, which susceptibility does not come up overnight – but is rather a gradual process, is influenced by the following factors, which in turn must be monitored by management so that solutions can be designed in time:

(a). **Sensitivity** of the company's **revenues** to the general level economic activity. If highly sensitive, lenders perceive higher risk and demand a higher return.

(b). Besides sensitivity of the revenue, managers should monitor **economic trends** and how they affect the organization's business and revenue. Certain economic / financial (e.g. interest rates, exchange rates, inflation, tax rates), political (such as elections, potential coup detas), social, and technological events and variables must be watched more carefully than others.

(c). **Proportion of fixed to variable costs**. The higher the operating gearing, the more the demand for a higher return. Managers should therefore monitor this 'operating gearing ratio' periodically. This can also point to the need to monitor levels of debt – noting that debt should only grow if there is increasing growth (actual or highly

(d). The **liquidity and marketability** of the firm's assets. The more the marketability of financial assets, the less the need for a higher risk premium. Managers should therefore maintain adequate liquid assets to avoid risk of distress.

(e). **Cash generating ability** of the business. The more regular the cash flow, the higher the acceptable gearing level. When revenues reduce unexpectedly, managers must react accordingly.

(f). Tendencies of **mismanagement of company resources.** Management should watch out for reports on the evaluation of internal controls, and general reports on the general financial health of the organization. Increasing frauds – actual or attempted, increasing staff dissatisfaction or complaints can also grow into mismanagement or into poor services to customers which can reduce revenue.

(g). Increasing **incidents of bad relationships** with stakeholders especially **creditors** – say denial of credit facilities; **customers** – e.g. complaints on quality or refusal to maintain a previously established purchasing pattern; Some businesses are sensitive to media publicity – and media stories need to be monitored as well.

5(b). Value of Myar in case of restructuring

This valuation shall be based on free cash flows method and the cost of capital, in view of the information provided – which excludes other valuation methods.

The value after restructuring can be estimated from

= Free cash flows/cost of capital less any outstanding liabilities;

The projected income statement can be constructed as follows:

Revised statement of income	Existing Shs mn	Changes Shs mn	Restructured Shs million
Sales revenue	153,920	18,470	172,390
Expenses - less depreciation, interest & tax	(145,108)	-	(145,108)
Tax allowable depreciation	(5,920)	(2,400)	(8,320)
Finance costs (interest)	(4,736)	(2,828)	(2,828)
Profit before tax	(1,844)		16,135
Taxation	-		(4,840)
Profit after tax	**(1,844)**		**11,294**

Cash flow position:	
Profit before tax and interest	18,962
Taxation - at 20%	(5,689)
Net cash flow	**13,274**

Cost of capital:

The current cost of capital is estimated at 14%; it is projected to reduce by 350 basis points to 14%-3.5% = 10.5%.

Valuation of the shares:

Value = free cash flow / cost of capital = 13,274/10.5%	= 126,419 million
Less: the value of debt -	= 19,500 million
Net value of equity	= **106,919** million

The information available points to the new number of shares being 110 million (30 + 80 million). This would imply that the value of each share is estimated at Shs 971.

This appears a better price that what is currently prevailing of Shs 650.

5(c). Acceptability of restructuring or dissolution by the different stakeholders

The different stakeholders obvious in the case study include: shareholders, bond holders, the Bank – for the overdraft; and the directors & top management of Myar.

The likely reactions to the dissolve/ restructure proposals will revolve around the following issues:

5(c).i Shareholders:

- The share will usually be the last to be paid in case a firm goes into receivership, which will automatically disadvantage them. And by the time receivership is approved, net equity is already or almost negative.
- To restructure and assure the shareholders of continuation of their company would be very good news for shareholders – some of whom may even have sentimental attachment to the company (say the founders).
- With negative profits, one may not be sure when the company would rebound, and therefore having positive projections of profit will be a welcome idea.
- The information available indicates that a share is trading at Shs 650. From the earnings based valuation, the share price is estimated at Shs 971, and this should be a positive idea to the current shareholders.
- Some skeptical shareholders may however fear to remain in this company that was nearing collapse, and will still want to dispose off their shares, but this can be better under the restructured company not the current company.

5(c).ii Bond holders:

- We do not have information on the amounts owing and the available resources to settle them relative to other creditors - to be able to compare the value they would be receiving and/ or what they would be forfeiting.
- Bond holders are however usually unsecured creditors, and will not have priority ranking in settlement under receivership arrangements.
- Bondholders in our case are receiving highly subsidized shares – where they are paying 30% of the nominal value;
- Likely reaction: to be receptive of the restructuring idea to benefit from subsidized shares.

5(c).iii The Bank – providers of the overdraft**.**

- The information does not specify whether the overdraft is secure or not – but it can usually be secured to different proportions; say it can be covered up to 80%.
- The information provided clarifies that the loan will be secured, and the Bank may not have a problem with such a proposal – as it could lose out in the event that the settlement ratio i.e. sale proceeds to total creditors is low or the security cannot generate the required funds 100%.
- The Bank may even prefer this secured long-term lending – as it assures the bank of longer-term cash flows from this asset (loan).

- This is besides the fact that they retain their customer – other than look for new unknown customers.

Likely reaction: accept / support the proposed restructuring

5(c).iv Directors and top management

- Dissolution comes with loss of jobs and sometimes a dent on the individual business leaders' curriculum vitae (CV). Continuity of the company will give them an opportunity to serve and prove their worth, continuity will also allow them to plan career or position changes with no immediate pressure of dissolution.
- Furthermore, this group of stakeholders are being offered share options;
- From the provided information, an exercise price of Shs 1,200/- assumes that the share will be higher than this but they would be allowed to buy a share at the stated relatively lower price. It is however unlikely that these shares are going to rebound immediately, and they may therefore not exercise the option.

Likely reaction: support the restructuring proposal

5(d). Possible solutions to a firm in financial distress

Introduction:

Solutions for or remedies to financial distress will depend on what caused the financial distress in the first place. Such causes can also be classified as internal or external (e.g. financial mismanagement vs economic slowdown); short-term or long term. Remember that financial distress can also be classified as severe or mild – and appropriate solutions can only be designed after the causes and magnitude of distress are clearly known.

Potential remedies for financial distress:

The following are some possible remedies to financial distress:

a. **Capital reconstruction** –

Capital reconstruction, such as what is being done at Myar, which may take the form of:

- Converting debt to equity – such that interest is no longer a mandatory payment – such that
- Converting preference shares into ordinary shares – thereby reducing the pressure of fixed repayment of preference dividends annually.
- Introducing more equity or more debt to finance some profitable projects. Such new projects will boost revenue and other fortunes of the company – and probably bring back the company onto its feet.

b. Operating efficiency improvements

A financially struggling company may opt to increase operating efficiency through tighter control of operating expenses while increasing total revenue. The limitation of this approach comes into play when controlling or reduction of expenditure affects or inhibits innovation.

c. Renegotiation of the terms and conditions of the existing

Negotiations can focus on various sections of the funding contracts – usually anything that will reduce the pressure on cash resources in the short-term – such as:

- Allowing in new financiers – that could have been excluded by the existing financiers;
- Extending the loan repayment period – with aim of reducing the amounts required for periodic servicing of the debts; note that in Uganda, such may be limited as financial institutions have restrictions on the number of times a non-performing loan can be restructured.
- Reduction of the interest rate – which would have the effect of reducing the total repayment of the loan;
- Extending the grace period of the loan – before principal can be repaid;
- Changing the terms say from an amortised loan to a bullet arrangement or changing the terms to suite the cash flows of the borrower.

d. Securing government funding

Some governments would be willing to rescue some systematically important institutions from financial distress. Such interventions vary from country to country and depend on the causes of the distress in the first place. The interventions may range from injection of equity, subsidized debt, or reduction of tax rates or tax exemptions until the financial situation normalizes, to takeover of the management of such companies for some time.

e. Diversification of markets

A company, whose financial challenges are due to increased competition or disappearance of a market may transform itself into the provision of a new product or into starting to play in a new market. Such a new market may come in with increased revenue to the rescue of the struggling firm. Such change of market focus should be preceded by thorough research and careful planning of the new market penetration and growth strategies, noting that firms usually make losses in new market segments until a certain break-even point.

f. Disposing of some loss-making assets or business segments

Sometimes, a segment of the company may a resource drainer. Such a segment if identifiable can be disposed off, leaving the other profitable assets or segments to continue.

ANSWERS TO TEST PAPER 2
CPA (U) JUNE 2018

Question1

1(a). KABACO's cost of capital that will be used in evaluation of projects:

When the company is expanding existing operations, the equity Beta and not the asset beta is required when estimating the cost of equity, assuming debt to be risk free;

Asset beta = Equity beta x $\frac{E}{E+D(1-t))}$

Therefore

1.1 = Equity beta x $\frac{215}{(215+85(1-0.3))}$

Equity beta = 1.40

Using CAPM

$K_e = R_f + (Rm-R_f)$ Beta

Then

Cost of equity = 6% + (14%-6%) x 1.40 = 17.2%

The CAPM estimate of equity will be used in the estimate of the weighted average cost of capital.

- The debenture will be used to estimate the current cost of debt
- The annual after tax costs of interest payments on the debenture

  = 80m x10 %(1- 0.3) = Shs 5.6 million - assuming no lag in time before tax relief on interest is available.

To find the redemption yield within four years to maturity, we need to estimate the rate that will equate cash flows to the current value of the debenture,

By trial and error:

Trying 5%					
Year	**0**	**1**	**2**	**3**	**4**
Cash flow	(85.0)	5.6	5.6	5.6	85.6
Discount factor - 5%	1	0.952	0.907	0.864	0.823
Present value	(85.0)	5.3	5.1	4.8	70.4
Net present value =					0.7
Trying 8%					
Year	**0**	**1**	**2**	**3**	**4**
Cash flow	(85.0)	5.6	5.6	5.6	85.6
Discount factor - 7%	1	0.935	0.873	0.816	0.763
Present value	(85.0)	5.2	4.9	4.6	65.3
Net present value =					(5.0)
By interpolation, the rate =	5.25%				

Estimating the **weighted average cost of capital**:

Market value of equity = 215 m

Market value of debt = 85 m

Therefore

WACC = Ke (E/D+E) + Kd (D/E+D)

= 17.2% x 215/(215+85) + 5.25% x 85/(215+85)

= 13.81% Approximately 14%

This is the cost of capital that will be used in evaluating the pancake project.

No further adjustment for inflation is necessary as the estimates of the cost of equity and cost of debt already include inflation.

When the company is diversifying its activities, the Beta of the comparator company will be used to estimate the systematic risk of the new investment; No un-gearing is necessary since the asset beta of the comparator company is given. This would need to be re geared to take into account the capital structure of KABACO.

Re-gearing

Beta equity = Beta asset x ((E + D (1-t))/E)

= 0.9 x ((215 + 85 (1-0.3))/215)

= 1.15

Using the capital asset pricing model:

$K_e = R_f + (Rm-R_f)$ beta = 6 %+(14% - 6%) 1.15=15.20%

Cost of debt remains 5.25 %

Market value of Equity = 215 m

Market value of debt = 85 m

Weighted average cost of capital =

(15.20% x (215/300))+ (5.25% x (85 /300)) =12.38%(Say 12 %)

The discount rate to be used in the investment of Hibiscus

1(b) Appropriateness of the assumptions used in the estimation of cost of capital:

- The discount rate used should normally reflect the weighted average cost of equity and debt taking into account the systematic risk of the investment. The company's weighted average cost of capital should only be used if the investment has similar systematic risk to the company as a whole and if the gearing of the company is unchanged, then the gearing of the company changes as a result of the investment, an alternative technique, the adjusted present value is recommended.
- The cost of equity and cost of debt should always be estimated using market values – but these may have some distortions;
- Regardless of whether youare estimating using either the dividend valuationmodel or the capital asset pricing model; in theory, the same models should provide the same estimate of the cost of equity. In many instances because of the market imperfections and problems associated with the estimation of an appropriate growth rate in the dividend valuation model the two models often give different results.

- CAPM is normally considered to be a better alternative. However this model also has theoretical weaknesses and there may be problems in obtaining data to input in the model.
- The cost of debt should be based upon the current market cost of debt. Where different types of debt are used, estimates of more than one cost of debt may be necessaryand these costs weighted according to the proportion ofeach type of debt that is used.
- The redemption yield of existing debt may be used to estimate the cost of debt if no obviousmarket priceis available. If the company is in the taxpaying position the cost of debt should be estimatednet of any tax relief on interestpaid on thedebt.

1(c)(i) Computation of payback period for each of the projects:

Pancakes Project:

year	Annual CF	Cum CF
	Shs 'million	Shs 'million
0	1,500	(1,500)
1	500	(1,000)
2	750	(250)
3	750	500
4	1000	1500

PBP = 2 + $\frac{250}{750}$ = 2.3 years

Hibiscus Project:

year	Annual CF	Cum CF
	Shs 'million	Shs 'million
0	800	(800)
1	300	(500)
2	450	(50)
3	300	250
4	600	850

PBP =2 + $\frac{50}{300}$ = 2.17 years

Conclusion:

Based on this evaluation, Hibiscus project should be chosen for implementation given that it has a shorter pay-back period.

1(c)(ii) Computation of the net present value

Pancake project implementation:

Projected Sales	Year 0	Year 1	Year 2	Year 3	Year 4
Vitamin A pancakes(kg)m		2.00	3.00	3.0	4.0
Price per kg		2500	2500	2500	2500
Revenue		5,000	7,500	7,500	10,000
Total costs		0.90	0.90	0.90	0.90
		4500	6,750	6,750	9,000
Income before tax		500	750	750	1,000
Tax 30%		(150)	(225)	(225)	(300)
Net income		350	525	525	700
Initial investment	1,500				
Cash flows	(1,500)	350	525	525	700
DF (14%)	1.000	0.877	0.769	0.675	0.592
Present value	(1,500)	307	404	354	414
NPV		21			

Hibiscus project:

	Year 0	Year 1	Year 2	Year 3	Year 4
Hibiscus(litres) m		1.00	1.50	1	2
Price per litre		2,000	2,000	2,000	2,000
Revenue (Shs. m)		2,000	3,000	2,000	4,000
Variable cost per litre		0.85	0.85	0.85	0.85
Total costs (Shs. m)		1,700	2,550	1,700	3,400
Net income (Shs. m)		300	450	300	600
Tax(at 30%)		90	135	90	180
Initial investment	800				
Cash flows (Shs.m)	(800)	210	315	210	420
DF (12%)	1.000	0.893	0.797	0.712	0.636
Present value (Shs. m)	(800)	188	251	150	267
NPV		56			

Conclusion:

Based on purely financial analysis the Hibiscus project gives better returns however since all the projects have positive NPV if the funds are available for implementation all the projects should be carried out since they will improve shareholder value.

Note however, that in practice investment decisions are not based on purely financial computations but also the strategies of the organisation

(d) Sensitivity of the projects to initial investment:

Pancake project:

Sensitivity = NPV/PV of variable factor

NPV = 21

Initial investment = 1500 million

Sensitivity = 21/1500 = 1.4%

Interpretation: For NPV = 0, There must be an increase in the initial investment by 1.4%

Hibiscus project:

NPV = 56 million

Initial investment = 800 million

Sensitivity = 56/800 = 7%

The investment must rise further to 7% for the NPV = 0

Reservations on sensitivity analysis:

Some of the drawbacks with sensitivity analysis include the following:

i) It assumes that each variable can be altered in isolation from others so it ignores interrelationships between variables such as selling volume and price.
ii) It does not deal with the probability of given changes and outcomes occurring only with their effects.
iii) It may reveal as critical, factors over which managers have no control and thus not providing a helpful guide for action.

iv) In itself it does not provide a decision rule; parameters defining acceptability must be laid down by managers.

(e)Advantages and disadvantages of payback period as a method of evaluation:

Advantages

a. The method is simple to calculate and easy to understand
b. The cost incurred to adopt this method is less than the one in other methods in other sophisticated techniques the cost of the analyst time and use of computers are required.
c. During the period of tight money conditions a quick payback project is preferable to one which yields a higher rate of return but ties up funds for a much longer period.
d. The emphasis in the pay back method is the early recovery of the investment. This gives preference to liquidity of the project as the funds so released earlier can be used on other projects.
e. ***Risk focus***. The analysis is focused on how quickly money can be returned from an investment, which is essentially a measure of risk.

Disadvantages:

a. It fails to take into account the cash flows earned after payback period.
b. It fails to consider the total return on the investment and thus it is not an appropriate method to measure profitability of an investment project.Just because a project has a short payback period does not mean that it is profitable.
c. It gives equal values to return of amount though they occur in different periods. Thus it fails to recognize the magnitude and timing of cash flows The two different projects may have pay return in the same period but the project giving large cash inflows in the early years is preferred than the project giving larger cash flows in the later years of the project.
d. There is no clear cut procedure for setting the maximum payback period and thus the administrators may face difficulties is determining the maximum acceptable payback period.
e. This method favours a short term project than a long term project which may turn out to be risk in future

(f) The advantages of borrowing on the Euromarkets.

The Euromarkets refer to ….

The Euromarkets are not subject to the government regulations that a country's "domestic " loan market is subject to. Thisand theeconomies of scalefrom dealing withvery large sumsmeans that there isless of a spread between lendingand borrowing rates on the Euromarkets than on domestic markets of individual countries. In other words lenders get higher rate of interest and borrowers get a lower ratethan on domestic markets.

(i) Key advantages of using the Euro market to borrow include:

a. They are more flexible than domestic market, loans can be tailored more easily to the currency and the type of repayment needed by the company and can normally be arranged quickly.
b. The interest rate charged will be lower than on a domestic loan.
c. Interest is paid gross which many taxpaying investorsprefer.
d. Loans are normally unsecured the borrower relies on the credit rating not assets available for security.
e. In addition if a very large company issues its own securities as opposed to going to the bank it can get still a lower interest rate.

(ii) Why the chairman should consider Islamic financing:

-key advantages of Islamic finance.

There arefive advantages that are offered by Islamic financewhich have made it a preferred choice among countries that have accepted it as a financial discipline.

It assists in financial inclusion

The conventional banking system is based on paying interest at a pre-determined rate on deposits of money. As both payment and receipt of interest is prohibited by the Shariah law, Muslims generally abstain from conventional banking. Through Islamic banking, financial inclusion can be promoted and a larger pool of savings can be brought into the economy.

Reducing the impact of harmful products and practices

Shariah principles forbid any investment that would support industries or activities that are considered harmful to the people and the society in general. This includes usury, speculation and gambling, irrespective of whether these are legal or not in a given territory.

It promotes the principle of financial justice

Financial justice is a basic requirement for the functioning of Islamic finance products. Western or conventional financing looks forward to profit through interest payments and makes the beneficiary completely liable for any risk. Contrary to this, Islamic financing paves way for the sharing of net profit/loss and the risk involved in a proportional manner between the lender and the beneficiary. Therefore, if a financier is expecting a claim on profits of a project, it is necessary that he/she should also carry a proportional share of the loss of that project.

Encouraging stability in investments

In Islamic finance, investments are approached with a slower, insightful decision-making process, when compared to conventional finance. Companies whose financial practices and operations are too risky are usually kept away by Islamic financing companies. By performing intensive audits and analyses, Islamic finance promotes the reduction of risk and creates the space for greater investment stability.

Accelerating economic development

Islamic finance companies certainly have profit creation and growth as their objectives. For which, they choose to invest in businesses based on their potential for growth and success. Thus in the Islamic banking industry, each bank will invest in promising business ventures and attempt to out-perform its competitors, in order to attract more funds from its depositors. This will eventually result in a high return on investments both for the bank and the depositors. This is unlikely in a conventional bank, where depositors redeem returns on their deposits based on a pre-determined interest rate

(g) The role of merchant banks in stock markets

A company wishing to raise capital by obtaining a listing on the stock exchange usually employs the services of a merchant bank to augment the skills and knowledge of management team.

The matters that would make the advice attractive:z

The need for and selection of other advisors e.g. lawyers, reporting accountants etc.

Compliance with external regulations concerning the issue: e.g. statutory provisions in relation to the prospectus and the submission of the detailed information required by the stock exchange rules. Special legal matters may however need to be dealt with by company lawyers.

The form of capital the issue is going to take e.g. straight equity or a combination of ordinary and preference shares, voting rights etc. and the amount of stock to be issued

The promotion of the issue: Press advertising is standard but increasingly presentations are made to the larger institutional investors.

To ensure the success of the venture the merchant bank will always advise that the issue be underwritten to guard against the possibility of under subscription. The underwriters who are usually a syndicate of merchant banks, discount houses and other financial institutions agree to take the shares not subscribed for in return for an underwriting commission.

Perhaps the most important advice thought will be regarding the timing of the floatation and the issue price which must be carefully set in order to ensure as far as possible the success of the issue while at the same time considering the interests of existing stockholders.

Question 2

2(a). Estimating benefits to ordinary and preference shareholders:

WORKINGS

1 SHAREHOLDING

	Ordinary shares No. 000's	Amount Shs 000's	Preference Shares No 000's	Amount Shs 000's
	200,000	200,000	70,000	70,000
Exchange	70,000	70,000	-70,000	-70,000
	270,000	270,000	0	0

(2marks)

Advice to shareholders:

Position of different stakeholders in the liquidation assuming the assets can be sold at going concern value)

VALUE OF ASSETS		Shs'000
Value of fixed assets		190,000
Inventory		113,623
Assets available		**303,623**
OTHER payables:		
Overdraft	36,713	
Trade payables	205,047	
		241,760
Available to Preference Shareholders		**61,863**

The above statement of assets reflects the position of the two interested parties with no reconstruction scheme. The preference shareholders would not be sure of their capital repayment on liquidation. The ordinary shareholders would get nothing (how much would depend on the difference between going concern and break values of the assets). It follows that the scheme must be favorable to Preference shareholders if it is to be successful. The preference shareholders are being offered an exchange of one for one share.

The preference shareholders are having all of their investment turned into equity. This is very reasonable as about half their capital would be lost on a liquidation

They will have $= \frac{70,000,000}{270,000,000} \times 100 = 26\%$ of ordinary shares

The ordinary shareholders will retain majority stake in the company if the reconstruction is accepted.

Participation:

Participation: $\frac{200,000}{270,000} \times 100 = 74\%$

Without any further cash investment,

	Shs. '000
Profit	550,000
Tax at 30%	165,000
Profit after tax	385,000
Available to Equity	385,000

EPS $= \frac{385,000}{270,000} = Shs1.43$

However as the shareholders would receive nothing on liquidation, but in this case they will expect (Shs 1.43 per share)

While preference shareholders would receive
(70,000,000 x 1.43 =Shs 100,100,000)
In this way the preference shareholders will embrace the restructuring because in the event of the liquidation they would only get Shs 61,863,000

2(b) Advice to management on the type of restructuring.

Restructuring can occur at three different levels

1 Corporate restructuring

This refers to changing the ownership structure of the parent company to enhance shareholder value.

Such changes can arise through diversification, forming strategic alliance or even liquidation.

2. Business restructuring.

This considers changing the ownership structure at the strategic business unit level examples may include acquisitions, joint ventures,disinvestments and management buy outs.

3. Asset restructuring

This refers to changing the ownership of assets. This can be achieved through sale and lease back arrangements, offering assets as security, factoring debts and asset disposals.

2(c) Ways in which restructuring enhances shareholder value:

Shareholder value can be enhanced in the following ways.

1. **Business fit and focus**.
In practice most of the business units may fit one company better than the other in this way mangers should review their strategic business units so as to ascertain whether they could create more shareholder value under the status quo or a different arrangement. When such unrelated activities have been divested, management will have more focus on its core activities that create value to shareholders.

2. **Elimination of sub-standard investments**.
   While strategic business units may be profitable quite often profitable units may be subsidizing un-profitable ones. Restructuring creates a leaner operation with no room for cross–subsidization brought by diversification and pursuit of growth in sales and earnings.

3. **Judicious use of debt**.
   Depending on the attitude of managers, to risk debt is a cheaper source of finance because interest is tax –deductiblewhile dividends on equity are not. Restructuringthe Statement of financial position by substitutingdebt for equity within acceptable gearing limits createsa tax shieldand increases the company's market value.

4. **Providing Incentives to management**.
   Raising debt to realizeequity can bea powerful incentiveto both shareholders and managers.
   Concentration of equity in the hands of the few shareholders often leadsto the creation of managerial incentivesto enhance shareholder valuethrough executive share options or other profit sharing schemes.
   Remuneration packages may increaseprofit-relatedpayat the expense of salariesand wages. This will alsobenefit loan stock holders who have priority ahead of profit – sharing but after employees' wages and salaries.

Question3

3(a). Evaluation of the risks and returns for projects Q and P:

Suggested approach:

- Compute the rate of return of each project
- Estimate the variance of the market return
- Compute the covariance of individual Project returns with the market return.

Expected rates of return from the project

= (Value at the end of the year*less* Value at the end of the year)/ Value at start of year.

Estimation of returns:

	Value at the end of the year	Value at the startof year	Difference	Divide by Value at the startof year	Rate of return
Project Q	12.5	10	2.5	10	0.25
	12.5	10	2.5	10	0.25
	9.5	10	-0.5	10	-0.05
Project P	10	10	0	10	0
	11.75	10	1.75	10	0.175
	13	10	3	10	0.3
Existing portfolio	90	100	-10	100	-0.1
	120	100	20	100	0.2
	130	100	30	100	0.3

Estimation of expected returns:

	Environment	Probability (P)	Rate of return (R)	P x R	
Project Q	A	0.3	0.25	0.075	
	B	0.4	0.25	0.1	
	C	0.3	-0.05	-0.015	
		Expected return		**0.16**	
Project P	A	0.3	0	0	
	B	0.4	0.175	0.07	
	C	0.3	0.3	0.09	
		Expected return		**0.16**	
Existing portfolio	A	0.3	-0.1	-0.03	
	B	0.4	0.2	0.08	
	C	0.3	0.3	0.09	
		Expected return		**0.14**	

Environment	Prob, P	Rate of return R	Expected return, E(R)	R-E(R)	Market Return R_m	R-E(R) x R_m	R-E(R) x R_m x P
Existing portfolio:							
A	0.3	-0.1	0.14	-0.24	-0.24	0.0576	0.01728
B	0.4	0.2	0.14	0.06	0.06	0.0036	0.00144
C	0.3	0.3	0.14	0.16	0.16	0.0256	0.00768
						Variance	0.0264
Project Q							
A	0.3	0.25	0.16	0.09	-0.24	-0.0216	-0.0065
B	0.4	0.25	0.16	0.09	0.06	0.0054	0.00216
C	0.3	-0.05	0.16	-0.21	0.16	-0.0336	-0.0101
	Covariance						-0.0144
Project P							
A	0.3	0	0.16	-0.16	-0.24	0.0384	0.01152
B	0.4	0.175	0.16	0.015	0.06	0.0009	0.00036
C	0.3	0.3	0.16	0.14	0.16	0.0224	0.00672
						Covariance	0.0186

Betas of projects Q and P

Beta of Project Q

$$= \frac{Covariance\ project\ Q\ and\ the\ market}{Variance\ of\ the\ Market}$$

$$= \frac{-0.0144}{0.0264} = -0.54545$$

Beta of Project P

$$= \frac{Covariance\ of\ Project\ P\ and\ the\ market}{Variance\ of\ the\ market}$$

$$= \frac{0.0186}{0.0264} = 0.704545$$

REQUIRED RATES OF RETURN ON EACH PROJECT

PROJECT

Q $= R_f + B_1(R_m - R_f)$

$= 10\% + -0.545(14\% - 10\%)$

$= 7.82\%$

PROJECT P $= R_f + B_2(R_m - R_f)$

$=10\% + 0.7045(14\% - 10\%)$
$=12.82\%$

EVALUATION OF PROJECTS

Since they both require the same initial investment and last for only one period We can say that since Project Q shows the greatest excess of the expected return (16%), over required return (7.82%) then it is the most favourable.

3(b). Principles used in arriving at the most favourable project between Q and P:

- The recommendation that project Q should be undertaken is made after taking into account the risk and the return of the two projects and how they relate to the company's (and the stock market's) existing risk and expected return relationship. It is based on the principles and conclusions of portfolio theory.

- Portfolio theory under a set of restrictive assumptions shows that when risky investments are combined, the expected return that results is a simple weighted average of the expected return of the individual investments. However the risk of the resulting combination may be less than or equal to the weighted average of the risk of the individual investments. The actual outcome depends upon the sign and the magnitude of the correlation coefficients of possible returns of the combined investments.

- Therefore when considering the addition of a new investment to an existing collection of investments, the effect of the action on the company's overall risk level is the point of importance in determining the expected return required from new investments. As a result the required expected returns from the two investment projects under consideration are determined not by their own overall risk levels but by the effect each would have on the overall risk level of the company.

- One way of utilizing this result is to divide an investment project's overall risk level into two components: systematic and unsystematic. Systematic risk is in effect, that part of an investment's total risk which actually affects the existing risk level of the

company. Unsystematic risk is a residual part which be ignored as it does not affect the company's existing risk.

- Therefore to choose between the two projects, their respective levels of systematic risk have to be found and used to estimate their required expected returns. These are then judged against their actual expected returns. This procedure was carried out on the two investment projects under consideration and it appears that both produce an expected return above the level required by the systematic risk of each. However the greatest of the excesses of the expected return is likely to be provided by project Q and thus this is held to be the preferred alternative.

- Although the reasoning has been based on the terms of the relation between project risk and the risk of Jamuka U Ltd, in actual fact the relationship of importance is between project risk and the general stock market risk. However it is correct for JAMUKA Ltd to view the relationship in terms of the project and the company because the company's risk and return is thought to reflect the risk and return of the market as a whole.

- In addition, the portfolio theory is constructed under a number of strict assumptions which may not hold in the real world. However, its general conclusions are logically sound and probably form useful guidelines for investment decision making in practice. Of particular importance is the idea that an investment's project return should not be viewed in terms of its own overall risk level but in terms of the effect of combining it with other investments on the overall risk of that combination.

Question 4.

4(a) discussing the viability of the chairman's suggestion in KKL's context

(i) Warrants and their substantial attractions and benefits.

Warrantsallow the holdersat their optionto buy a pre-determinednumber of sharesat a given price and given time. They usually have an expiry date and if by this time the market price of the underlying share has not risen above the warrant exercise price then holders will choose not to exercise them. Alternatively if share prices have risen above this level they allow the holders to buy equity at less than the market price.A loan stock with warrants can be used by the company for two main reasons.

- A sweetener for the debt issue the possibility of equity at a discount pricemeans that the interest rate on the loan stockcan be set at lower level than straight debt.
- A way of provingnew equity capital in future if warrants are exercised.

(ii) Traded options are not issued by companies. They are options arranged through a broker to buy (call) or sell (put) shares ina number of major companies. They are for the periods of three to nine months and allowholders to buyor sell shares ata predetermined price and time.

Issuing debt with warrants could be a useful tacticfor the company but the suggestion of using the traded options is of no value as Companiesdo not issue traded options.

4(b) Estimating;

(i) Yield to maturity of security A

YTM: Is the internal rate of return of a bond

Using K_d = 13%

Bo = 14×3.517 + 100×0.543

= 49.24 + 54.3 = Shs 103.54m which is lower than 105m

Therefore; we need to try another interpolation Kd which will give a higher value say 12%

Bo = 14×3.605 + 100×0.567

= 50.47 + 56.70 = Shs 107.17m which is higher than 105m

Therefore : IRR (YTM) lies between 12 % and 13%

Linear interpolation is applied to determine the YTM, using the formula:

$$\text{YTM} = K_{d1} + (K_{d2} - K_{d1}) \frac{(B_1 - Bo)}{(B_1 - B_2)}$$

Hence: 12% + (13%-12%) $\frac{(107.17-105.0)}{107.17-103.54}$ = **12.6%**

An approximation formula may be used to avoid tedious trial and error:

YTM = $\frac{I + (F - P)/n}{0.4F + 0.6P}$

Where;

I = annual interest rate payment

F = Par value of the bond
P = Present value of the bond
N = Years to maturity

YTM = $\frac{14m + (100 - 105)/5}{0.4 \times 100 + 0.6 \times 105}$ **= 12.62**

4(b)
A Shs 100 million par value bond bears a coupon rate of 14 % and mature after 5 years interest is paid semi- annually compute the value of the bond if the required rate of return is 16%

Valuing bonds that pay interest semi-annually involves three steps:

Step1: Convert bond's annual interest (I) to semiannual interest -- divide I by 2. As the annual rate is 14 percent, the semi-annual rate is 7 percent.

Step: Convert the years to maturity (n) to semiannual periods -- multiply n by 2. As the bond will reach maturity in five years, there are ten compounding periods left before the bond matures (5x2 = 10 years)

Step3: Convert annual required return (i) to semiannual discount rate -- divide i by 2
16% /2 = 8%

The bond valuation formula for a bond paying interest semiannually is:

Bo = Sum (1 to n) $I/2 / (1+i/2)^{2n} + M/ (1+i/2)^{2n}$

The Bond's cash flow has 2 components:
1. An annuity component (the coupon)-Interest payments
2. A lump sum (the face value paid at maturity)-Redemption value

We thus estimate the market value of the bond by calculating the present value of these two components separately and adding the results together.

Bond value (B_o) = $PV_{\text{Int. payments}} + PV_{\text{Redemption value}}$)

Therefore:

$B_o = 7\ PV1FA_{8\%, 5} + 100\ PV1F_{8\%, 5}$

B_o = (7 x 6.710) + (100 x 0.463) = 46.97 + 46.30 = Shs 93.27

4(c)

Factors to consider before investing in Key Bonds.

There are a number of key variables to look at when investing in bonds: the bond's maturity, redemption features, credit quality, interest rate, price, yield and tax status. Together, these factors help determine the value of your bond investment and the degree to which it matches your financial objectives.

- **Interest rate**

Bonds pay interest that can be fixed, floating or payable at maturity. Most debt securities carry an interest rate that stays fixed until maturity and is a percentage of the face (principal) amount. Typically, investors receive interest payments semiannually.

But some sellers and buyers of debt securities prefer having an interest rate that is adjustable, and more closely tracks prevailing market rates. The interest rate on a floating rate bond is reset periodically in line with changes in a base interest rate index, such as the rate on Treasury bills. Some bonds have no periodic interest payments. Instead, the investor receives one payment at maturity that is equal to the purchase price (principal) plus the total interest earned, compounded semiannually at the (original) interest rate.

Known as zero coupon bonds, they are sold at a substantial discount from their face amount. If the bond is taxable, the interest is taxed as it accrues, even though it is not paid to the investor before maturity or redemption.

- **Maturity**

A bond's maturity refers to the specific future date on which the investor's principal will be repaid. Bond maturities generally range from one day up to 30 years. In some cases, bonds have been issued for terms of up to 100 years. Maturity ranges are often categorized as follows:

Short-term notes: maturities of up to five years;

Intermediate notes/bonds: maturities of five to 12 years;

Long-term bonds: maturities of 12 or more years.

- **Redemption Features.**

While the maturity period is a good guide as to how long the bond will be outstanding, certain bonds have structures that can substantially change the expected life of the investment.

Call Provisions

For example, some bonds have redemption, or all provisions that allow or require the issuer to repay the investors principal at a specified date before maturity.

Bonds are commonly called when prevailing interest rates have dropped significantly since the time the bonds were issued. Before you buy a bond, always ask if there is a call provision and, if there is, be sure to obtain the yield to call as well as the yield to maturity. Bonds with a redemption provision usually have a higher annual return to compensate for the risk that the bonds might be called early.

Puts

conversely, some bonds have puts, which allow the investor the option of requiring the issuer to repurchase the bonds at specified times prior to maturity. Investors typically exercise this option when they need cash for some purpose or when interest rates have risen since the bonds were issued. They can then reinvest the proceeds at a higher interest rate.

- **Principal Payments and Average Life**

  In addition, mortgage backed securities are typically priced and traded on the basis of their average life rather than their stated maturity. When mortgage rates decline, homeowners often prepay mortgages, which may result in an earlier than expected return of principal to an investor. This may reduce the average life of the investment. If mortgage rates rise, the reverse may be true, homeowners will be slow to prepay and investors may find their principal committed longer than expected.

  Your choice of maturity will depend on when you want or need the principal repaid and the kind of investment you are seeking within your risk tolerance. Some individuals might choose short term bonds for their comparative stability and safety, although their investment returns will typically be lower than would be the case with long term securities. Alternatively, investors seeking greater overall returns might be more interested in long term securities despite the fact that their value is more vulnerable to interest rate fluctuations and other market risks as well as credit risk.

- **Yield**

  Yield is the return you actually earn on the bond based on the price you paid and the interest payment you receive. There are basically two types of bond yields you should be aware of: current yield and yield to maturity or yield to call. Current yield is the annual return on the amount paid for the bond and is derived by dividing the bond's interest payment by its purchase price.

  Yield to maturity and yield to call, which are considered more meaningful, tell you the total return you will receive by holding the bond until it matures or is called. It also enables you to compare bonds with different maturities and coupons. Yield to maturity equals all the interest you receive from the time you purchase the bond until maturity (including interest on interest at the original purchasing yield), plus any gain (if you purchased the bond below its par, or face, value) or loss (if you purchased it above its par value). Yield to call is calculated the same way as yield to maturity, but assumes that a bond will be

called and that the investor will receive face value back at the call date. You should ask your investment advisor for the yield to maturity or yield to call on any bond you are considering purchasing. Buying a bond based only on current yield may not be sufficient, since it may not represent the bond's real value to your portfolio.

- **Market Fluctuations: TheLink between price and the yield**
  Price and Yield from the time a bond is originally issued until the day it matures, its price in the marketplace will fluctuate according to changes in market conditions or credit quality. The constant fluctuation in price is true of individual bonds' and true of the entire bond market with every change in the level of interest rates typically having an immediate, and predictable, effect on the prices of bonds.
  When prevailing interest rates rise, prices of outstanding bonds fall to bring the yield of older bonds into line with higher interest new issues.
  When prevailing interest rates fall, prices of outstanding bonds rise, until the yield of older bonds is low enough to match the lower interest rate on new issues.
  Because of these fluctuations, you should be aware that the value of a bond will likely be higher or lower than its original face value if you sell it before it matures.

- **The Link between Interest Rates and maturity**
  Changes in interest rates don't affect all bonds equally. The longer it takes for a bond to mature, the greater the risk that prices will fluctuate along the way and that the fluctuations will be greater and the more the investors will expect to be compensated for taking the extra risk. There is a direct link between maturity and yield. It can best be seen by drawing a line between the yields available on like securities of different maturities, from shortest to longest. Such a line is called a yield curve.

Question5

5(a) Discussing circumstances under which CAPM or APT might be better methods of in determining cost of Capital

Capital asset pricing model (CAPM) suggests that a simple linear relation exists between beta and the expected return. It may be used to estimatethe cost of equity (hence the required rate of return) to be used as part of the discount rate of capital investments. However CAPM is based upon a series of restrictive assumptions which include:

- Investors are only interested in the in the mean and variance of their expected returns
- Investors have the same beliefs about the mean and standard deviation of portfolios

- Investors have same one period horizon
- There are no taxes or transaction costs
- Investors can borrowor lendat the risk free rate
- No individual investor can influencethe market price of a security.
- Additionally CAPM is an ex-ante modelbut the data used in the model are normally ex post.

Empirical test of CAPM suggest that company size, market to book value ratios, Price earnings ratios, dividend yieldsand long-term contrarian strategies are to some extent related to expected returns, not just beta.However there is debate about whether CAPM can actually be tested.

Another view is that returns are influencedby the behavioral biasby investorse.g.bias against companieswith lowmarket to book value ratios.

Despiteits theoretical limitationsCAPM is relatively easy to applyand is widely usedin capital investment decisions.

Arbitrage pricing theory (APT) is a multi-factor model that assumes that the returns on invests are generated by a number of industry and market factors, rather than just within a mean variance framework. Itrelies upon less restrictive assumptions than CAPM and allows for the possibility that investors may hold different types of risky portfolios. Unfortunately there is little agreement on what the factors are that explain returns, hence the model is difficult to apply to capitalinvestment decisions.

5(b) Main features of share re-purchase (buy-back)

Share repurchases are away for companiesto distributeearnings to shareholders other than 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 takeover bids. Companies typically repurchase shares either by makingtender offer for a block of shares, or buying the shares in the open market. In the absence of taxation and transaction costs, share repurchase and the payment of dividends should have the same effect on the share value. However the different treatment of taxation on dividends and capital gains may lead to a preference for share repurchases by investors.

If the repurchase of shares is by means of 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 share repurchase conveys to the market about the company and its future prospects

Managers should take decisions that maximize the intrinsic value of the firm. This in theoryinvolvesundertaking the optimum amountof positiveNPV investments. The useof

share repurchases and the payment of dividendswill therefore be influenced by the amount of investment that the company undertakes. When the company will not have sufficient investments to fully utilize available cash flow, the payment of dividends and 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, possibly greater earnings potential than previously believed. However if this subsequently proves not to be so share prices will adjust down wards.

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.

5(c) Circumstances when APV might be a better method of evaluating Capital investment then than the Net Present Value method (NPV)

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 investments involves complex tax payments and tax allowances, and / or has periods when tax is not paid
- Subsidized loans, grants or issue costs exist
- Financing side effects exist (e.g. the subsidized loan) which require a discounting at a different rate than that applied to the main stream project

5(d) Key features of convertible loan stock:

- Convertible loan stock can be issued more cheaply than a straight loan because it offers an equity incentive.
- Companies perceived as relatively high risk can attract loan finance by offering the possibility of participating in the future growth.
- The bonds (including convertible stock) can also be traded on the stock exchange while standard loans cannot.
- Where it is believed that the true worth of the company is not adequately reflected in the share price, convertible stock provide a means of raising capital that may eventually become equity without diluting the value of existing equity.
- Convertibles offer the benefits of both equity and loan stock thereby attracting additional investors.
- If all goes as planned, the conversion to equity will occur, reducing the gearing ratio (but also lowering earnings per share).

ANSWERS TO TEST PAPER 3
CPA (U) AUGUST 2018

Question 1

1(a) Evaluating the proposed manufacturing in Kenya:

Step1: Estimate the exchange rates for the five years

Exchange rates	KShs/UShs	Mid rates
Spot	34.00-36.00	(34+36)/2= 35
Year1	32.69-34.62	(32.69 +34.62)/2= 33.66
Year 2	31.43-33.28	(31.43 +33.28)/2= 32.36
Year 3	30.23-32.00	(30.23 +32.00)/2= 31.12
Year 4	29.06-30.77	(29.09 +30.77)/2= 29.92
Year 5	27.95-29.59	(27.95 +29.59)/2= 28.77
Year 6	26.87-28.45	(26.87 +28.45)/2= 27.66

Step 2: Tax allowable depreciation

Tax allowable depreciation on machinery is 10% of 1,500 million i.e. Ksh. 150 million each year.

Step 3: Estimation of cash flows in Ksh.

It is assumed that all the units produced are sold in the year of production and that all the associated cash receipts and expenditures occur during the same year

Cash flows estimates in KShs (millions)

Year	1	2	3	4	5
Sales (W1)	1,680	1,814	1,960	2,116	2,286
Variable costs (W2)	(672)	(726)	(784)	(847)	(914)
Ug. Part (W3)	(94)	(91)	(87)	(84)	(81)
Fixed costs	(140)	(158)	(179)	(202)	(228)
Depreciation	(150)	(150)	(150)	(150)	(150)
Taxable profits	624	689	760	833	913
Tax 30%	(187)	(207)	(228)	(250)	(274)

Note: Depreciation is not a cash flow, but needs to be deducted to find the tax liability in Kenya

Workings:

W1: Forecasted Sales Revenue in KShs million

Years	Sales revenue
1	140,000 x 12,000 = 1,680
2	140,000 x 12,000 x $(1.08)^1$ = 1,814
3	140,000 x 12,000 x $(1.08)^2$ = 1,960
4	140,000 x 12,000 x $(1.08)^3$ = 2,116
5	140,000 x 12,000 x $(1.08)^4$ = 2,286

W2: Variable costs in KShs million

Years	Sales revenue
1	140,000 x 4,800 = 672
2	140,000x 4,800 x $(1.08)^1$ = 726
3	140,000 x 4,800 x $(1.08)^2$ = 784
4	140,000 x 4,800 x $(1.08)^3$ = 847
5	140,000 x 4,800 x $(1.08)^4$ = 914

W3: Variable costs Uganda part

140,000 x 20,000 = UShs 2,800 million

Years	**1**	**2**	**3**	**4**	**5**
Ugandan part (UShs 'm)	2,800	2,800	2,800	2,800	2,800
Exchange rate	33.36	32.36	31.12	29.92	28.77
Ugandan part (KShs'm)	94	91	87	84	81

W 4 Working Capital Requirement in KShs m

Year	Required working capital	Incremental cash-flow
0	1,680 x 0.1 = 168	168-0 = 168
1	1,814 x 0.1 = 181	181-168 = 13
2	1,960 x 0.1 = 196	196-181 = 15
3	2,116 x 0.1 = 212	212-196 = 16
4	2,286 x 0.1 = 229	229-212 = 17
5	Recovery	229

W5 Contribution of Uganda part p.a.

= 140,000 x 5000 = UShs 700 million.

Actual cash flows in KShs and UShs in millions:

Year	0	1	2	3	4	5	6
Sales		1,680	1,814	1,960	2,116	2,286	
Costs		(906)	(975)	(1,050)	(1,133)	(1,223)	
Tax			(187)	(207)	(228)	(250)	(274)
Investment	(2,800)						
Working capital	(168)	(13)	(15)	(16)	(17)	229*	
Sales of assets						1,200**	(135)
Realizable value						1,910	(183)
Net CFs in KShs.	(2,968)	761	639	687	738	4,152	(592)
Kshs/ UShs	35.00	33.36	32.36	31.12	29.92	28.77	27.66
Net CFs-UShs	(103,880)	25,387	20,678	21,379	22,081	119,453	(16,375)

Note 1: It is assumed that the money tied up in working capital will be released when the project is ended. In practice, investment in working capital will vary during the life of the project.

Note 2: The assets are sold for Ksh. 1,200 million. Written down value is KShs 1,500-KShs (5x 150) = KShs 750 million.

The gain on disposal is KShs 1,200m-750m = KShs 450 million and is subject to tax at a rate of 30% i.e. KShs 135 million. The gain has been calculated by taking the proceeds less the written down value of the assets.

Note 3: Realizable value is estimated by historic cost of fixed assets, 2,800m less disposals, 1,500m adjusted for Kenya inflation at 8% per annum or 1,300 x $(1.08)^5$ = KShs 1,910m. Tax would be payable on any gain on disposal. Tax is estimated by KShs 1,910m less the original cost of KShs 1,300m or a gain of KShs 610m taxed at 30% giving tax liability of KShs 183m

Since corporation tax rate in Uganda and Kenya is 30%, no further tax liability will arise on remitted cashflows.

Actual cash flows in Ushs million:

Year	**0**	**1**	**2**	**3**	**4**	**5**	**6**
Remitted cash in UShs	(103,880)	25,387	20,678	21,379	22,081	119,453	(16,375)
Contbn Ug. Part (W5)		700	700	700	700	700	
Tax there on this part		-	(210)	(210)	(210)	(210)	(210)
NCFs	(103,880)	26,087	21,168	21,869	22,571	119,943	(16,585)
DCF at 17%	1.000	0.855	0.731	0.624	0.534	0.456	0.390
PV in UShs	(103,880)	22,304	15,474	13,646	12,053	54,694	(6,468)

NPV is UShs 7,823 million. On the basis of financial analysis, the project should be undertaken as it does result in a positive NPV. However, the calculations are based on

estimates and will be subject to margin of error, and it is unwise for a company to rely on one single NPV estimate. The final investment decision should be based upon several alternative financial forecasts and non-financial influences.

Assumptions

1) Tax will be payable on the scrap value of machinery.
2) Contribution taxable in Uganda against Kenya tax.
3) Further information that might be useful to the analysis would include:
   - Details as to how the estimates of the project's cash flows were made.
   - Details about where the company derived its estimate of the future Kenya inflation rate and the future rate of depreciation of the Kenya Shilling.
   - Details of how the estimate of the machinery's five-year scrap value was made.
   - An analysis about whether or not political risk might be a significant factor.
   - A sensitivity analysis of the project.
   - What happens to cash flows beyond the company's planning horizon.
   - If the investment has the potential to lead to future opportunities/investments, value of such options should be estimated.

1(b) The risks arising from international factors which may influence cash flows

a. Taxation policies

Taxation policies differ substantially between countries and may therefore complicate estimates of the magnitude and timing of cashflows. Many tax systems recognize the injustice of taxation in two or more countries upon the same income, and subsequently provide relief to avoid extra burden. The effects of taxation do, however, depend upon how cashflows are remitted and transferred between countries.

b. Political risks

Multinational companies may face varying degrees of intervention from the governments of countries in which their subsidiaries are located. Such intervention might reduce the cashflows available to projects, in extreme case through expropriation of asset without compensation.

Other risks associated with political factors include:

- **Blocked funds are particularly common**, where the remittance of cash to the parent country on another desired location is restricted or prohibited by local government through imposition of exchange controls or other regulations. This may lead to cash flow generated by the project in a foreign country deviating significantly from cashflows that are available for repatriation to the parent company, and raises the question whether the project cashflows or remitted cashflows should be considered in the appraisal of foreign investments. The company can however, partially avoid this problem by remitting funds through supervisory fees and royalties, or by adjusting transfer price.

- **Taxes and tariffs:** Tax rules in Kenya might change to the disadvantage of BUL. The current corporate tax rate of 30% could be increased or new taxes, such as profit repatriation tax, might be introduced after BUL has established the subsidiary. If these happen, cash flows from the subsidiary will reduce, and the value of BUL will fall.
- **Protection of intellectual property:** Laws on protection of intellectual property may be nonexistent or weak. Besides, enforcement of such laws may be inefficient. BUL might lose profits due to infringements on its intellectual property rights.
- **Protectionism:** Protectionist measures such as import quotas, imposition of stringent safety and quality standards, and devaluation of local currency might be employed after the subsidiary has been established. If this happens BUL's plans to sell goods and services to the subsidiary for payments will not yield the expected cash flows.
- **Nationalization:** Foreign operations face the threat of nationalization particularly when a democratic system of governance is not in place. Kenya has recorded a sustained democratic system of governance in recent years. However, it history of coup d'états cannot be overlooked. If government falls into the hands of militants, radical changes to the investment and finance environment, including nationalization of foreign interests, may be executed.
- **Civil war:** If a civil war explodes in Kenya, the subsidiary will lose sales as it may not be able to operate and/or customers/distributors will not be able to buy goods. Besides, there may be breakdown of law and order with attendant vices such as vandalism and looting.
- **Corruption:** High level of corruption amongst public officials, including regulators, will make it difficult for BUL to get services it deserves and on time. If BUL decides to pay its way out, that will increase its costs of operation.
- **Racial or ethnic tensions:** Racial or ethnic tensions has serious ramifications for human resource, marketing, and plant location decisions. If racial or ethnic tension is rife amongst employees, the company will not be able to operate efficiently.
- **Terrorism:** Terrorist activities creates fear and panic amongst the population, including employees and customers. If the issue of Al Shabaab is not solved and their activities spreads, operations of the subsidiary could be under threat
- **Inflation and exchange differentials**: These factors are closely related to political risk, since they are influence by government's policies. A foreign direct investment involves the use of different currencies, which even in formal exchange rate systems, experience changes in relative values, estimation cashflows that could be remitted to the parent company requires an estimate of exchange rates relationships over a period of the investment. Potential gains and losses arising from movements in exchange rates can substantially affect project cashflows. Some protection against long-term foreign exchange rate movements, is of course, available through the use of swaps and other hedging strategies

1(c) managing blocked remittances/ limitations on remittances :

There are a number of ways BUL could deal with the issue of blocked funds:

(i) BUL could sell goods or services to the subsidiary and obtain payment. This could be for raw materials used in manufacture or Management staff supplied. The amount of this payment would depend on the volume of sales and also on the transfer price for the sales.
(ii) BUL could charge a royalty on the courses that the subsidiary runs. The size of the royalty could be adjusted to suit the wishes of BUL's management.
(iii) BUL could make a loan to a subsidiary at a high interest rate, which would improve BUL's company's profits at the expense of the subsidiary's profits.
(iv) Management charges may be levied by BUL for costs incurred in the management of international operations.
(v) The subsidiary could make a loan, equal to the required dividend remittance to BUL.

1(d) **Advantages and disadvantages of using Islamic finance and eurobonds**

There are a number of advantages of using eurobonds to finance the proposed investment.

- They are typically issued by companies with excellent credit ratings and are normally **unsecured**, which makes it easier for companies to raise debt finance in the future.
- Also eurobonds create a liability in a foreign currency to **match** against a foreign currency asset**.**
- Eurobonds are often **cheaper** than a foreign currency bank loan because they can be sold on by the investor, who will therefore accept a lower yield in return for this greater liquidity.
- Eurobonds are also extremely **flexible**. Most eurobonds are fixed rate but they can be floating rate or linked to the financial success of the company.
- Eurobond issues are not normally advertised, because they are **placed** with institutional investors and this reduces issue costs.

Disadvantages of eurobonds

- Like any form of debt finance there will be **issue costs** to consider (approximately 2% of funds raised in the case of eurobonds) and there may also be problems if gearing levels are too high.
- Risk associated with foreign exchange currency fluctuations if the loan is denominated in foreign currency.

Benefits of Islamic finance Islamic finance:

- Operates by the underlying principle that there should be a link between the economic activity that creates value and the financing of that economic activity.

- The main advantages of Islamic finance for BUL are that excessive profiteering is not allowed, only reasonable mark-ups are allowed, and that since Islamic banks cannot use excessive leverage they are less likely to collapse.

Drawbacks of Islamic finance:

- The use of Islamic finance does not remove all commercial risk, indeed there may even be additional risk from the use of Islamic finance. For example, there may be the risk that after an Islamic finance product has been designed it does not receive approval from Islamic scholars as being Sharia compliant.
- There is no standard Sharia'a model for the Islamic finance market, meaning that documentation is often tailor-made for the transaction, leading to higher transaction costs than for the conventional finance alternative.
- Due to governmental and Sharia'a restrictions, Islamic finance institutions are subject to additional compliance work, which can also increase transaction cost

1(f) Ethical issue in the Presidents relationship with the CEO of BUL

It is likely that the BUL's actions will be scrutinized more closely because of the past business relationship of the President of Salaam Bank and BUL's CEO in the run up to the acquisition of the term loan at an interest rate below the prime lending rates.

In this situation, the company should take actions based on its ethical and accountability code. Most major corporations now publicise such codes of behavior and would consult these in cases of ethical and/or accountability difficulties.

With the situation concerning the Salaam Bank president and BUL's CEO, whilst it would make good business sense to forge strong relationships as a means of competitive advantage, BUL should ensure that the negotiation was transparent and did not involve any bribery or illegal practice.

If both BUL and Salaam Bank can demonstrate that they acted in the best interests of the company and the Bank respectively, and individuals did not benefit as a result, then this should not be seen in a negative light. BUL needs to establish a clear strategy of how it would respond to scrutiny of the transaction ensuring the best and correct outcome for all the stakeholders concerned.

(Note: Credit will be given for alternative, relevant approaches to the comments and suggestions/ recommendations)

Question 2

2(a) Analysis of the effects of the new investment on:

(i) Times interest earned ratio
(ii) Operational leverage (OL)
(iii) Financial leverage (FL)

The best approach is firstly to calculate the impact on the forecasted income statement and the finance section of the statement of financial position.

Income statement

	2017 Shs'm	Marks
Revenue (48,000 + 7,500)	55,500	0.5
Cost of sales (28,800 + 3,300)	32,100	0.5
Gross profit	23,400	
Other variable operating expenses (40% x 8,400) + 960)	4,320	0.5
Profit before interest and tax	19,080	
Interest (2,400 + (6% x 30,000))	4,200	0.5
Profit before tax	14,880	
Tax (2520 + (30% x (7,500 – 3,300 – 960 – 1,800))	(2,952)	0.5
Profit after tax	11,928	
Dividends (50% x 11,928)	5,964	0.5
Retained earnings	**5,964**	**1.0**

Statement of financial position

	Shs'm	
6% Debentures	30,000	0.5
10% Debentures	24,000	0.5
	54,000	0.5
Equity share capital and reserves (72,000 + (5,964 – 2,940)	75,024	0.5

(i) Times Interest earned ratio = $\frac{\text{Profit before interest and tax (PBIT)}}{\text{Interest charge}}$

Before the investment:

$= \frac{10,800}{2,400} = 4.5$ 2 marks

After the investment

$= \frac{14,880}{4,200} = 3.5$ 2 marks

Comment:
Whereas the times interest earned ratio has reduced as result of the proposed investment being fined by debt, the ratio it is still within the industry average of three times. 1 mark

(ii) Operational Leverage = Contribution
Profit before interest and tax (PBIT)

Before the investment

$$= \frac{48{,}000 - 28{,}800 - (40\% \times 8{,}400)}{10{,}800} = 1.47$$

After the investment

$$= \frac{55{,}500 - 32{,}100 - 4{,}320}{19{,}080} = 1.0$$

Comment:
After the investment the operating leverage has reduced from 1.47 to 1.0 implying a reduction in business risk.

(iii) Financial Leverage = Prior charge capital
Total capital employed

Before investment

$$= \frac{24{,}000}{72{,}000 + 24{,}000} = 25\%$$

After investment

$$= \frac{24{,}000 + 30{,}000}{24{,}000 + 30{,}000 + 75{,}024} = 41.9\%.$$

Comment:
After the investment the financial leverage has increased from 25% to 47% implying that the firm is financing, however, it is still within margin of safety (i.e. still below 50%). The biggest risk that is likely to arise from increasing financial leverage will occur when the Return on Asset (ROA) does not exceed the interest on loan, which greatly diminishes the company's Return on Equity (ROE) and profitability.

2(b) Circumstances when debt financing will be more appropriate:

a. The company is in a healthy competitive position-
Competitive advantage is the favorable position an organization seeks in order to be more profitable than its rivals. To gain and maintain a competitive advantage, an organization must be able to demonstrate a greater comparative or differential value than its competitors and convey that information to its desired target market. For example, if a company advertises a product for a price that's lower than a similar product from a competitor, that company is likely to have a competitive advantage. The same is true if the advertised product costs more, but offers unique features that customers are willing to pay for.

b. Cash flows and earnings are stable:
Cash flows – While debt finance is cheaper than equity finance, it places on the company the obligation to pay out cash in the form of interest. Failure to pay this interest can result in action being taken to wind up the company. Hence, consideration should be given to the ability of the company to generate cash. If the company is currently cash-generating, then it should be able to pay its interest and debt finance could be a good choice. If the company is currently using cash because it is investing heavily in research and development for

example, then the cash may not be available to service interest payments and the company would be better off using equity finance. The equity providers may be willing to accept little or no cash return in the short term, but will instead hope to benefit from capital growth or enhanced dividends once the investment currently taking place bears fruit. Also, equity providers cannot take action to wind up a company if it fails to pay the dividend expected.

c. **Profit margins are reasonable.** This will enable the company to abide by the terms of the loan repayments.

d. **Operational gearing is low** (i.e. the fixed costs that have to be covered by profits from trading activities are low)

e. The bulk of the company's assets are tangible:
Security and covenants – If debt is to be raised, security may be required and the tangible assets will provide.

f. The debt-equity ratio is low. Creditors usually like a low debt to equity ratio because a low ratio (less than 1) is the indication of greater protection to their money. Lenders and investors usually prefer **low debt-to-equity** ratios because their interests are better protected.

g. The liquidity and cash flow position is strong- This measures the solvency of your business, or your ability to meet immediate commitments and long-term obligations.

h. **Share prices are low-** The difficulty of obtaining cash through a stock offering when **share prices are** down is obvious—the same number of shares sold at a **lower** price will raise less money. Thus raising debt finance a better option.

Question 3

3(a) Analysing /discussing the extent to which the shareholders of DUL will benefit from the proposed merger.

DUL's market value using its P/E and earnings is 17.4m x 12 = **Ushs 208.8 m**
The post merger earnings of the new company (Smart Collections) will be (Ushs 30m + Ushs 17.4m) x 1.08 = **Ushs 51.192 m**

Using the expected P/E ratio of 11, the value of FUL is Ushs 51.192 m x 11 =
=Ush.563.11m
The 30 million shares of DUL will be swapped for 120 million FUL shares, making 240 million shares in the new company (Smart Collections Ltd.) in total.

Therefore, the wealth of DUL's shareholders will now be Ushs 563.22m x (120m/240m) = UShs 281.56 million.

DUL's shareholders are UShs 72.76 m (i.e. 281.56-208.8m) better off (2.42 Ushs per share).

208.8 m

3(b) Discuss the reasons why acquisitions and mergers are not always successful.

a. Errors in valuing a target company

Managers of the bidder may advise its company to bid too much, as they struggle to isolate the value of the target. A risk-changing acquisition cannot be valued without revaluing your own company on the supposition that the acquisition has gone ahead. The value of an acquisition cannot be measured independently. As a result, the merger may fail as the target's subsequent performance cannot compensate for the high price paid.

Alternatively, the expected synergies may not be realizable to the level that the target company was valued at, which means that the price paid is too high and ultimately the acquisition fails.

b. Window dressing

Another reason for the high failure rate is that companies are not acquired because of the synergies that they may create, but in order to present a better financial picture in the short term.

c. Poor integration management

In order to integrate two or more organizations effectively, there must be effective integration management and recognition that successful integration takes time. Where management is poor or there is an attempt to do too much too soon, potentially successful mergers can fail.

d. **Inflexibility** in the application of integration plans drawn up prior to the event can be damaging. Once the merger has taken place, TUL's management must be prepared to adapt plans in the light of changed circumstances or inaccurate prior information.

e. **Poor staff-management** can be detrimental to successful integration. Lack of communication of goals and future prospects of employees, and failure to recognize and deal with their uncertainties and anxieties, can lead to employees being unclear of what is expected of them. Hostilities may develop between the two groups of staff, with an unwillingness to adapt to new procedures and practices. Keeping staff informed is important for FUL.

3(c) Major considerations that the predator company has to take into account when deciding on how to finance a proposed take-over.

There are a large number of factors that will influence a company on the way it decides to structure its financing of a takeover bid, as follows:

a. The tax position of the target company's shareholders:
   If they are tax exempt, they may prefer a cash offer as they will not incur capital gains tax. If they are liable for capital gains then they may prefer a share-for-

share offer. If there is a diverse range of investors in different tax-paying positions then a mixed bid may be more appropriate.

b. The acquiring company's level of liquidity and ability to borrow funds:
This will determine whether it will be able to find sufficient funds in order to make a cash offer.

c. The acquiring company's share price:
If its share price is high compared to the victim company's share price, the predator company will not have to issue too many shares if it makes share-for-share offer, reducing any potential dilution of EPS and control.

Question 4

4(a) Analysis of the two alternative investments.
To analyze the two investments, we need to determine risk-return relationship of the proposed projects and then assess the degree of relationships. This is done by computing expected values, projects risks and co-variabilities.

Projects expected returns

Project W

State of nature	*P*	*X*	*XP*
Boom	0.15	45	6.75
Growth	0.70	20	14.0
Recession	0.15	-10	-1.5
Average return			19.25

Project P

State of nature	*P*	*X*	*XP*
Boom	0.15	18	2.7
Growth	0.70	17	11.9
Recession	0.15	16	2.4
Average return			17.0

Project risks

Project W

State of nature	*P*	*X*	$\overline{X}$	$(X_w - \overline{X}_w)$	$P(X_w - \overline{X}_w)^2$
Boom	0.15	45	19.25	45-19.25=25.75	99.5
Growth	0.70	20	19.25	20-19.25=0.75	0.4
Recession	0.15	-10	19.25	-10-19.25= -29.25	128.3
Variance					228.2
Standard deviation					15.11

Project P

State of nature	*P*	*X*	$\overline{X}$	$(X_p - \overline{X}_p)$	$P(X_p - \overline{X}_p)^2$
Boom	0.15	18	17.0	18.0-17.0=1.0	0.15
Growth	0.70	17	17.0	17.0-17.0 = 0.0	0.00
Recession	0.15	16	17.0	16.0-17.0 = -1.0	0.15
Variance					0.30
Standard deviation					0.548

Project co-variances:

Prob.	Returns		Av. returns		Dev.		Co-variance
	W	P	W	P	W	P	$P(X_w - \overline{X}_w)(X_p - \overline{X}_p)$
0.15	18	45	19.25	17.0	25.75	1	25.75 x 1 x 0.15= 3.86
0.70	17	20	19.25	17.0	0.75	0	0.75 x 0 x 0.70 = 0.00
0.15	16	-10	19.25	17.0	-29.25	-1	-29.25 x -1 x 0.15 =4.39
						Co-variance	**8.25**

Correlation coefficient

$$\frac{Cov_{(w,p)}}{SD_w \times SD_p} = \frac{8.25}{15.11 \times 0.548} = 1$$

Comment:

The correlation coefficient of 1 between the two proposed projects imply that they are positively related, meaning that if one performed badly, the other is most likely to perform in the same direction. Therefore the proposed idea of having a diversified portfolio of the two projects seem not to make economic sense due to the risk.

Limitations of Portfolio analysis

Portfolio analysis explained:
Portfolio analysis describes an evaluative process of reviewing holdings of an entire investment portfolio. Each asset must be evaluated for performance. Portfolio analysis also investigates the risks associated with the net present portfolio composition. Portfolio analysis in the process of looking at every investment held in a portfolio an evaluating how it affects the overall performance. The analysis seeks to determine the variance of each security, the overall beta of the portfolio, the amount of diversification and the asset allocation within the portfolio.

Portfolio analysis is a useful tool in evaluating how your investment portfolio is performing in terms of rate of return and risk. Accomplished by looking not only at how your individual investments perform but also how they perform together, an analysis can identify underperforming or excessively risky assets and provide guidance as to where changes to your investment allocations should be made to keep you on track to meet your investment objectives. Although each individual investor has his own goals in terms of performance, a routine analysis can be useful for any portfolio regardless of its strategy. Portfolio analysis is a helpful tool, but it is not without limitations.

Through analysis, under-performing assets as well as assets with excess risk relative to their returns can be identified and replaced. This is highly advantageous as the resulting "optimized" portfolio will have either the same expected return with less risk than before or a higher expected return with the same level of risk.

Tax advantages-In addition to maximizing returns for a given level of risk, portfolio analysis also is advantageous in minimizing the tax impact on portfolio returns. Depending on such variables as the type of account, security type and tax bracket of

the investor, taxation can eat into returns and make otherwise attractive investments mediocre at best. A portfolio analysis with a focus on tax efficiency may prove advantageous in identifying ways to structure investments to minimize the impact of taxes and increase the net return to the investor.

Limitations

Even with the most careful planning and portfolio construction, past performance is never a guarantee for future results. Even the most thought out investment strategies can fail given the proper circumstances. Additionally, investment objectives can change over time. For example, from long-term growth during the early stages of a career to preservation of capital during retirement, a portfolio analysis will need to be done periodically to make sure your investments are in line with your objectives.

1. The portfolio model is usually implemented using historic returns, standard deviations and correlations to aid decision making about future investment.
2. Generally there is implicit assumption that the key statistical relationships will not alter over the life of the investment.
3. The model relies on predictability and stability of the probability profile of returns. If the returns have been historically volatile then the probability distribution for the anticipated returns will be given a corresponding wide rage, if they have been confined to a small fluctuations in the past then the forecasted variability will be similarly small.
4. Predicting returns, standard deviation and co-variances is a difficult and imprecise art. The past may provide some guide to some degree, but there remains a margins of error
5. The volume of computations for large portfolios can be inhibiting. If there are many n securities the n expected returns have to calculated along with n standard deviations and covariance
6. The use of indifference curves is probably an elusive goal and therefore the technique used can be criticized for trying to use unobtainable information.

Question 5

(a) Risk-return relationship of equity and debt based on their relative priority for repayment, the creditor hierarchy.

To: The Board of Directors of MFL

From: Advisor/ candidate

Date: Exam date

Subject: Risk-return relationship of equity and debt based on their relative priority for repayment, the creditor hierarchy.

The creditor hierarchy refers to the order in which financial claims against a company are settled when the company is liquidated. The hierarchy, in order of decreasing priority, is secured creditors, unsecured creditors, preference shareholders and ordinary shareholders.

The relative risk/return relationship of equity and debt is based on their relative priority for repayment on liquidation-the creditor hierarchy.

The risk of not receiving any cash in liquidation increases as priority decreases. Secured creditors (secured debt) therefore face the lowest risk as providers of finance and ordinary shareholders face the highest risk.

On liquidation, the firm's assets are sold, and the cash received flows in a cascade from the top of the creditor hierarchy downwards.

The return required by a provider of finance is related to the risk faced by that provider of finance. Secured creditors therefore have the lowest required rate of return and ordinary shareholders have the highest required rate of return.

The cost of debt should be less than the cost of preference shares, which should be less than the cost of equity
Equity shareholders are paid only after all other commitments have been met. They are the last investors to be paid out of company profits.

Risk, required return and cost of finance concerns.

- Secured loans and secured loan notes:

Debt investors have legally binding contract with the firm for repayment of interest and repayment of principal, while the firm is trading interest must be paid, secured creditors are repaid first. Therefore secured debtor can be considered a low risk investment and investors in secured debt, require relatively low returns, creating cheap finance for the firm.

- Unsecured debt.

This is also a legally binding contract and its interest must be repaid prior to dividends. However, there is no guarantee of full repayment on liquidation, the required rate of return will be higher than the on a secured debt hence the cost will be higher.

- Preference shares

Although preference dividends are paid after interest, they are fixed percentage of the shares per value and paid before any ordinary dividends. On liquidation preference share rank between creditors and ordinary shares, hence the required return on preference shareholders (and hence the firm's cost of preference capital) will be higher than on debt but lower than on ordinary shares.

- Ordinary shareholders

Equity shareholders have no guarantee of receiving dividends (ordinary dividends are discretionary, whereas preference dividends are committed) and rank last on liquidation. Therefore ordinary shareholders face a high risk and expect a high return to compensate; leading to the firm's cost of equity being relatively high.
The level of risk faced by the equity investor depends on:

- volatility of company earnings
- Extent of other binding financial commitments.

Given the link to the volatility of company earnings, it is these investors that will face more risk if the company was to embark on riskier projects.
If we want to assess the impact of any potential increase (or decrease) in risk on our estimate of the cost of finance, we must focus on the impact on the cost of equity.

5(b) Discussing the relevance of Stock markets and Inter-bank markets and the Debt markets in the economic development in Uganda.

b(i) Relevance of stock markets

1. Raising capital

   Stock market help businesses and entrepreneurs to come together to buy and sell shares for the purpose of providing capital to enterprises that need it

2. Servicing investors

   Stock markets act as intermediaries for large and small investors seeking to make money outside the realm of standard banking institutions. The role of the stock market in an economy is to maximize return on savings that might otherwise languish in static bank accounts with low returns
   Stock exchange offers investors assurances via formal oversight on investments.

3. Indicator of health

   A stock exchange acts as a barometer of the nation's fiscal health, broadcasting the ups and downs, tends and shifts of the domestic economy

4. Financial accountability.

   Sophisticated financial system requires credibility and accountability if they are to function on behalf of businesses and investors as interested in ethics as they are both in profits. It assists in upholding the rules and regulations.

5. Economic effects

   The direct effect of stock market activity can impact a nation's economy in multiple ways, Stocks fall, spending stops, consumers lose confidence and nation's financial state begins to falter. Conversely, stocks rise; confidence spreads, spending and investments grow. A nation's mood can rise and fall on stock market activity and performance which show how important the role played by a stock exchange can be in societal social and fiscal fabric

6. Expanded diversity.
   If one of the roles of the stock market is to bring together likeminded investors, exchanges also serve as fiscal melting pots, giving minority businesses an opportunity to place shares of new company assets before

potential stakeholders who might not otherwise learn about the diverse new products if it were not for exchange

b(ii) Inter-bank Market.

- The interbank market is the financial system and trading of currencies among bank and financial institutions, excluding retail investors and smaller trading parties. Most of interbank trading takes place from the banks own accounts

- The interbank market acts as the circulatory system of a nation's economy. Tensions in the interbank market are reflected in the various other financial markets as widening spreads, lack of liquidity, increased volatility and currency shortages.

- If banks themselves are unable to obtain funds necessary to maintain their own businesses, they will be unable to extend credit to consumers, firms, mortgage borrowers and many other types of borrowers.

b (iii) Debt market

- Debt market allows government to raise money to finance the development activities of the government.

- It also plays an important role in efficient mobilization and allocation of resources in the economy.

- Since the government securities are issued to meet shorter needs and long-term financial needs of the government, they are not only used as instruments for raising debt, but have emerged as key instruments for internal debt management, monetary management and short-term liquidity management.

- The debt market also, provides greater funding avenues to public sector and private sector projects and reduces the pressure on institutional financing.

- It also enhances mobilization of resources by unlocking illiquid retail investments like gold.

ANSWERS TO TEST PAPER 4
CPA (U) NOVEMBER 2018

Question 1

AGREME LTD.

Report

To: Directors of AGREME LTD.

From: Financial Analyst

Date; Exam Date

Subject: Financial evaluation of the alternative water stations

1(a) (i) Financial evaluation of the alternative water stations

Discount factor (Risk free rate) = 4%

GRAVITY FLOW SYSTEMS (**GFS**).

Year	**CE**	**NCF 'millions'**	**ENCF**	**4%**	**PV**
1	0.90	8,000	7,200	0.962	6,926
2	0.85	7,000	5,950	0.925	5,504
3	0.80	7,000	5,600	0.889	4,978
4	0.75	5,000	3,750	0.855	3,206
5	0.70	5,000	3,500	0.822	2,877
6	0.65	5,000	3,250	0.790	2,568
7	0.60	5,000	3,000	0.76	2,280
				PV	**28,339**
	NPV = 28,339-13,000 = 15,339				

Conclusion:

Based on the NPV the project seems viable.

DAM HOLDINGS SYSTEM (DHS).

Year	CE	NCF 'millions'	ENCF	4%	PV
1	0.9	9,600	8,640	0.962	8,312
2	0.85	8,400	7,140	0.925	6,605
3	0.8	8,400	6,720	0.889	5,974
4	0.75	6,000	4,500	0.855	3,848
5	0.7	6,000	4,200	0.822	3,452
6	0.65	6,000	3,900	0.790	3,081
7	0.6	6,000	3,600	0.760	2,736
				PV	34,007
NPV = 34,007-18,000 = 16,007					

Based on this computation the project seems viable.

Best alternative to adopt:

On purely financial grounds the Dam Holding System alternative is expected to produce a higher NPV.

1(a) (ii) Evaluation of acquisition of Cranes.

There is an investment decision; AGREME LTD must first establish whether there is a business case for acquisition of the equipment. If there is, then the second stage is to establish the most appropriate form of financing.

Step 1:

Computation of Tax savings on capital allowances				
Year	Qualifying balance	25% allowance	Tax Savings on CA	Timing
	Shs 000	Shs 000		
1	120,000	30,000	9,000	T2
2	90,000	22,500	6,750	T3
3	67,500	16,875	5,063	T4
4	50,625	12,656	3,797	T5
5	37,969	37,969	11,391	T5
Balancing allowance	37.969			
Residual	0			

Step 2 : Computation of NPV

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Shs '000	Shs '000	Shs '000	Shs '000	Shs '000	Shs '000	Shs '000
Capital Cost	-120,000						
Cash savings		50,000	50,000	50,000	50,000	50,000	
Tax			-15,000	-15,000	-15,000	-15,000	-15,000
Tax savings on CA			9,000	6,750	5,063	3,797	2,848
Net cash flow	-120,000	50,000	44,000	41,750	40,063	38,797	-12,152
15% DCF	1	0.870	0.756	0.658	0.572	0.497	0.432
Present value	-120,000	43,500	33,264	27,472	22,916	19,282	-5,250
Total NPV							**21,184**

Recommendation:

Since the NPV is positive the company should proceed with the acquisition of the hydraulic cranes

1(a) (iii) Advising on the method of acquisition, whether to purchase outright or lease.

The next stage is to evaluate the alternative methods of financing the acquisition. If the cranes are purchased using a bank loan, the cash flows will be as those calculated above. The discount rate to be used must be an after tax cost of borrowing i.e. 13% x (1.00-0.3) = 9.1 %. This is approximately 9 %

Option 1: Buying Option

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Shs '000	Shs '000	Shs '000	Shs '000	Shs '000	Shs '000	Shs '000
Capital Cost	-120,000						
Cash savings		50,000	50,000	50,000	50,000	50,000	
Tax			-15,000	-15,000	-15,000	-15,000	-15,000
Tax savings on CA			9,000	6,750	5,063	3,797	2,848
Net cash flow	-120,000	50,000	44,000	41,750	40,063	38,797	-12,152
9% DCF	1	0.917	0.842	0.772	0.708	0.650	0.596
Present value	-120,000	45,850	37,048	32,231	28,365	25,218	-7,243
Total NPV	**41,469**						

Option 2: Leasing option:

If the cranes are acquired using a finance lease the cash flows change since the capital allowances will not be available, but the lease payments will be allowable against tax. The annual tax that will be saved is Shs 8,400 (28,000 x 0.30)

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	'000	'000	'000	'000	'000	'000	'000
Lease payments	-28,000	-28,000	-28,000	-28,000	-28,000		
Tax savings on lease payments		8,400	8,400	8,400	8,400	8,400	
Cash savings		50,000	50,000	50,000	50,000	50,000	
Tax on cash savings			-15,000	-15,000	-15,000	-15,000	-15,000
Net cash flow	-28,000	30,400	15,400	15,400	15,400	43,400	-15,000
DCF at 9%	1	0.917	0.842	0.772	0.708	0.65	0.596
Present value	-28,000	27,877	12,967	11,889	10,903	28,210	-8,940
Total NPV							**54,906**

Advise on the best option:

Since the NPV of the leasing arrangement is higher than that of the purchase, this means that leasing is the preferred alternative. The board should therefore acquire cranes through the leasing arrangement**.**

1(b) (i) Advantages of international markets and problems of using them:

- They are more flexible than many domestic markets and not subjected to same degree of control.
- The cost of borrowing in the International markets is often slightly less than for the same currency in relevant domestic capital markets.
- Interest is normally paid gross, which is attractive to some investors;
- Very large sums can be raised quickly without the queuing process that exists in many domestic capital markets.
- Usually no security is required
- Issue costs are relatively low
- There is an active secondary market in many types of international market security.
- Eurobonds in particular offer the opportunity to swap interest payment into a more convenient form (e.g. fixed to floating rate) often at a lower cost than borrowing directly.

Potential problems may include;

- The Ugandan company would either need to be rated highly by one of the international rating agencies in order to be able to access the markets, or it would probably be necessary for the company to offer a guarantee from government in association with the issue
- Any international market borrowing will have to be in the hard currency such as the dollar or other hard currencies. The company will need to convince the market that it has access to sufficient hard currency to fully service interest and principal payments.
- The dangers of foreign exchange fluctuations associated with borrowing from international markets.

(ii) How the cranes could be acquired using Ijarah – Islamic banking.

Agreme Ltd could enter into an arrangement with a financial Institution to acquire the cranes using Jarrah financing arrangement.

Ijarah is a type of contract in Islamic finance. Under this mode, a bank may buy the cranes and lease them out to AGREME (U) Ltd. who may opt to buy the Cranes eventually.

The Ijarah arrangement could be an operating Ijarah, which does not include the promise to transfer the legal title to the leased asset in this case the Cranes to the lessee (AGREME) at the end of the lease or the Financing Ijarah (Ijarah Mutahia) which is concluded by passing the legal title of the leased asset to the lessee (in this case AGREME (U) Ltd.

For the Ijarah contract to be valid it must be preceded by acquisition of the asset to be leased by the Institution (the lessor). The Ijarah contract is binding contract which neither party may terminate or alter without the others consent. In this case the Bank and AGREME.

The lessee in this case AGREME will be required to pay monthly payments to the Bank, which constitute two components: rental for the use of the equipment and installment towards the purchases price.

Further, under this arrangement, if AGREME (i.e. the lessee) defaults on payments or delays payments, the lessor (the bank) can't charge compound interest.

(c) Views of the Finance Director and how AGREME can mitigate such actions.

By accepting their appointment to the position, directors imply that they will perform their duties to a certain standard, and it is a reasonable assumption of the shareholders that every individual director will apply his or her particular skills, experience and intelligence to the advantage of the company.

Mr. Onen is clearly suggesting a bribe to the officials at Central Environmental Management Authority which is contrary to the above position. Bribery is one of

the most common forms of corruption that prevails in many different departments and sectors. The suggested fee is likely to pollute CEMA officials perception on business practice which is in ethical and likely to damage the reputation of the individuals involved and the Organizations.

In bribery, you will find out different people taking some extra money or other valuable assets in order to treat the customer in the preferred way that he demands.

Stopping the fraud and corruption spreading people is must for the growth of any company or organization, many people who ignore this fact have to face very adverse consequences and finally they also have to bear heavy loss in their business. This is simply because of the current laws in Uganda which are against such practices.

But one can be on the safer side if he or she decides to take the preventive measure before hand and make the workplace a corruption free place.

Some of the methods by which one can prevent and stop corruption and fraud in the workplace include:

- *Clear and Strict Protocols:*

A workplace can have a managed and systematic environment for working when every single individual is well aware of his or her duties and limitations that they need to follow to work in the organization.
The protocols should be clear and strict for every person, whether he is the manager of the company or the average worker of the company everyone should follow certain protocols, this will also end up the discrimination between the staff members and finally the working environment will be healthy for working.

- *Open communication:*

Most of the times it happens that the low grade employees of the company are well aware of the fact that who is behind all the corruption and fraud that is prevailing in the workplace but they are not allowed to meet and communicate with the head or the upper managers. This actually suppresses the faith of the employees and the corruption grows well under the table.

So, open communication should be allowed to all the employees of the company, this will let you know all information about the working of the company and the workers. This also boosts up the morale of the workers and the workplace grows well without corruption and fraud.

- *Keep a regular and systematic check over the Financial transactions:*

A majority of people tend to start their business with proper management and system but once the company touches the desired growth they tend to become less worried about the little things that are happening in the workplace, which encourages the corruption and fraud people to continue damaging the company and fulfill their desires.

So you need to be very specific about all the transactions and expenses that company is bearing, this will let you to keep your workplace safe from any financial frauds.

- *System of Review:*

Not only the financial department of the company is the most important but all the different departments of the company are equally important and they too need proper review of the things, so manage a defined system according to which you can review and keep a check over all the happenings of the company. This will let you to stay informed about the slightest thing that is happening in the work place.

- *Have Trustworthy Hands in the Workplace:*

You need to have certain people of trust who you personally know from many years and who can be dependable enough that if something wrong is happening in the company or in between the workers then they are the first people who will inform you at the earliest so that further upcoming problems can be stopped. This also assure that you have working eyes in between the workplace even when you are not actually present there.

- *Take the reports and the corruption claims seriously:*

Most of the people set a defined management and then they forget all the worries, claims, reports that come from the management.
If you are not taking proper action on the reports of the management and the employees then setting a management is of no use, so you need to take active part in all the reporting that is provided by the employees and the management.
This will let you to eliminate all the risky elements from the workplace before they tend to do fraud with the people and spread corruption in the company. This active participation will also keep the management up to date and the proper working of the company and workplace will be assured.

QUESTION 2

(a) Advice to the directors of GVL on whether to invest in the two real estate tourism projects.

Step 1: Compute the return of each project
Step 2: Compute the risks of each project
Step 3: Assess the degree of correlation that exists between the two proposed projects.

Project expected returns:

(a) Expected return of the beach Project-Project L

EV_L = (0.2 x 5,000) + (0.3 x 5,000) + (0.4 X 10,000) +(0.1 x 10,000) = 7,500m

(b) Expected return of cottage project- Project M

EV_M= (0.2x 5,000) + (0.3x 7,500) + (0.4 x 5,000) + (0.1 X 7,500) = 6,000m

Comment:
Based on average returns, the luxury breach resort project has higher return

Project risks:
We now apply the usual expression of the standard deviation calculations below:

Project L

Outcome Millions (X)	Prob (P)	$P\ X$	(X- $\overline{X}$) million	(X- $\overline{X}$)^2 million	P(X - $\overline{X}$)^2 million
5,000	0.2	1000	(2,500)	6,250,000	1,250,000
5,000	0.3	1,500	(2,500)	6,250,000	1,875,000
10,000	0.4	4,000	2,500	6,250,000	2,500,000
10,000	0.1	1,000	2,500	6,250,000	625,000
Av return		$\overline{X}$ =7,500	Variance		6,250,000
Standard deviation					2,500

Project M

Outcome Millions (Y)	Prob.(P)	P Y	(Y- $\overline{Y}$ million	(Y- $\overline{Y}$)^2 million	P(Y- $\overline{Y}$)^2 million
5,000	0.2	1,000	(1,000)	1,000,000	200,000
7,500	0.3	2,250	1,500	2,250,000	675,000
5,000	0.4	2,000	(1,000)	1,000,000	400,000
7,500	0.1	750	1,500	2,250,000	225,000
Av. Return $\overline{Y}$ = 6,000			Variance=1500,000		
Standard deviation					1,225

Comment:
Based on the above computation the luxury beach resort project is indeed the riskier project with standard deviation of 2,500 while the mid range cottage project has a lower risk of 1,225.

Calculation of covariance:
Cov $_{L,m}$ = P(X- $\overline{X}$) (Y- $\overline{Y}$)

Prob.	(X- $\overline{X}$) 'millions'	(Y- $\overline{Y}$) 'millions'	P(X- $\overline{X}$) (Y- $\overline{Y}$)	**Marks**
0.2	(2,500)	(1,000)	500,000	**0.5**
0.3	(2,500)	1,500	(1,125,000)	**0.5**
0.4	2,500	(1,000)	(1,000,000)	**0.5**
0.1	2,500	1,500	375,000	**0.5**
		Covariance	(1,250,000)	**1.0**

Comment:

A covariance of (1, 250,000) suggests a strong element of inverse association and perhaps stronger than we may expect in reality this is confirmed by the value of the correlation coefficient.

Correlation coefficient

$$Cor_{L,m} = \frac{Cov_{L,m}}{Sd_l \times Sd_m} = \frac{(1,250,000)}{2,500 \times 1225}$$

$$= \frac{(1,250,000)}{3,062,500} = (0.408)$$

Comment:

A negative correlation coefficient implies that there is an inverse relationship between the two projects. That is if one performed poorly, the other is likely to perform better. Therefore, the company can proceed with two projects.

(ii) Benefits and risks of diversified portfolio

Benefits:

Benefits of holding a well diversified portfolio one of the most important principles of investing is to ensure that the investor has a diversified portfolio , this means ensuring that the investor spreads his capital amongst different investments so that is not reliant upon a single investment for all his actions. The key benefits of diversification include;

a) Minimizing or balancing risk- In one investment performs poorly over a certain period, other investments may perform better over the same period, reducing the potential losses on the investment portfolio from concentrating all the capital under one type of investment
b) Preserving capital- Not all investors are in accumulation phase, when a company is close to maturity has all goal oriented towards preservation od capital. And diversification can help to achieve this goal.
c) Generating returns- Sometimes investments do not rely upon one sourc of income
d) Less volatility- If poorly structures, an investor should have less volatility in the overall portfolio. One of the keys to diversification is to select assets which have very low correlations.

Risks of diversification.

a) Missing on the big one.-The safety that diversification brings also brings a downside. If one picked a great investment and spreads the money out, the investor losses the opportunity to completely benefit from the investment. Diversification carries the risk of diluting gains as well as losses.
b) False sense of security-True diversification cans bring hard to come -by even many seemingly diversified portfolios are not really diversify. In addition systematic factors affect highly diversified portfolios.

2(b) Discuss the significance of the assumption at the heart of financial theory, that investors are “risk averse”

- Investors express different risk thresholds. Those with low risk thresholds orient towards safer investments; safe in the sense that actual returns tend not to differ much from expectations.
- Others have higher risk thresholds (risk takers), favouring investments offering more impressive rates of wealth accumulation.
- The salient point, of course is that the actual results of risky investments are more prone to deviate significantly from initial investments.
- Nevertheless, financial theory sates that all investors are risk averse, but not in the sense of investors being unwilling to take risks.
- The argument is that all investors, faced with alternative assets offering the same returns but with contrasting risks, will choose the lowest risk investment.
- Investors do not knowingly assume risks that offer no prospect of reward.

SOLUTION 3

(a). Report to the Managers evaluating the proposed financing mix for the management buyout of the sports centre.

To : The Managers of UBOTL

From : The Financial Analyst

Date : Exam date

Subject: Benefits and Drawbacks of the proposed financing mix.

Assuming the sports centre can be purchased for Shs 35 billion, the financing mix is likely to be:

	Provider	Source	Shs 'billion'
1	Pinkland Bank	Floating rate loan at CBR +3%	20
2	Pearl Partners.	Mezzanine debt with warrants	10
3	UBOTL	Shs 500 @ ordinary shares	1
4	Managers	Shs 500 @ ordinary shares	4
Total			35

Benefits

- The main advantage of the financing package is that it would allow the buy out to go ahead and the managers to have control of the organization with ownership of 80% (i.e. 4/5 x 100) of the equity whilst only contributing 11.4% (i.e. 4b/35b x 100) of the required capital. This will be possible as long as the company will be able to pay the debt in a timely manner and in full.
- The effectiveness of control however depends upon managers remaining a cohesive voting group. If more than 50% of the shares are to be held by the key senior management group, control is more secure.

- By using mezzanine finance (29%) and Floating rate loan (75%), the MBO will leverage its return (i.e. maximize return) while contributing less of its own capital.
- Whereas the interest on Mezzanine finance is high, it is fixed therefore the company can benefit from rising interest rates.
- Further, the interest which will be paid on Mezzanine finance and floating rate loan will be tax deductible. A surprise benefit of borrowing. The cost of interest will reduce the company's taxable profit and, therefore, reduces the tax expense.
- Whereas the Pinkland Bank loan has a financial covenant attached, the risk of default is low based on the projected interest coverage ratio.

Interest coverage= $\frac{EBIT}{Interest\ expense}$

Years	1	2	3	4
EBIT Shs in millions	13,000	14,000	19,000	20,000
Interest expense (W1)	4,400	4,150	3,850	3,500
Interest cover	3 times	3.5 times	4.9 times	5.7 times

Assuming no further Borrowing, during the next four years, the interest coverage ratio is expected to move to approximately 5.7 times as per the table above. Therefore, the condition (financial covenant) attached to the loan will be met and the loan is likely not be recalled.

W1 Interest expense

a) Floating rate loan = 13% x 20b = 2.6b
b) Unsecured loan = 18% x 10b = 1.8b
Total interest = 4.4b

Procedure:

- Determining the Annual installment
- We need the Annuity factor (AF)

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

Where: r = Interest rate per period = 18% n= number or period = 5 years

Then the equated annual installment is given by:

Installment = Principal/ annuity factor

= 10b/3.127 = 3.20billion

The total repayments are 3.2b x 5 years = Shs 16billion

The total interest charge for the five years is shs 6b i.e. 16b-10b = shs6b
We now need to allocate the shs 6b over the five years across each of the five years.

All figures in shs billions					
Year	1	2	3	4	5
Opening balance	10	8.6	6.95	5.00	2.70
Add: 18% Interest	1.8	1.55	1.25	0.90	0.49
Less: Installment	(3.2)	(3.2)	(3.2)	(3.2)	(3.2)
*Closing balance	8.6	6.95	5.00	2.70	-0.02

(There is a minor rounding off difference of Shs (0.02b) in year 5)

*The closing balance for each year will be the opening balance for the next year.

Drawbacks

- Disadvantage of achieving control with a small percentage
  A disadvantage of achieving control with a small percentage of the required capital is that capital gearing will be extremely high. Even in comparison to other management buyouts, an initial debt to equity ratio of 600% (Shs 30 billion to Shs 5 billion equity) is unusually high. It is understandable that the Pinkland Bank, as the major risk bearer of debt, has imposed a financial covenant that seeks to ensure that there enough coverage for interest expense.
- Dilution of ownership-The existence of warrants with mezzanine finance could dilute the future percentage ownership of the managers.
- Mezzanine Finance- the interest rates on this type of loan are comparatively high (18%) compared to other secured or more senior forms of debt (i.e. the floating rate loan (13%).
- The floating rate loan contributes about 57% of the total financing package, this seems too risky as the loan will be secured against the sports center which poses a danger of loss of assets in the event of default.
- Floating interest cost-The floating interest cost on the bank loan may become a burden if the interest rates rise, however, in this case the company has proposed to buy a four year interest cap at 15% for its loan from Pinkland Bank for an upfront premium of Shs 0.8 billion. However, the premium seems to be too high compared to the likely increase in interest payable.

➢ Fixed interest cost**-**The fixed interest cost on the bank loan may become a burden if interest rates fall, however, the cost can be forecast with certainty.

NB. Credit should be given to alternative arguments.

3(a) (ii) evaluating managements forecast that the value of equity capital will increase by 15%

In order to estimate the change in the value of equity, we can use forecast retained earnings figures, assuming dividends to be at a maximum of 10% level.

(All figures are in Shs. millions).

Years	0	1	2	3	4
EBIT Shs m		13,000	14,000	19,000	20,000
Interest		4,400	4,150	3,850	3,500
EBT		8,600	9,850	15,150	16,500
Tax (30%)		2,580	2,955	4,545	4,950
EAT		7,750	8,500	13,500	16,499
Dividend (10%)		775	850	1,350	1,650
Retained Earnings		6,975	7,650	12,150	14,849
Equity @start	5,000	5,000	11,975	19,625	31,775
Equity @End	5,000	11,975	19,625	31,775	46,624

To calculate the compound annual growth rate (CAGR) in equity, divide the value of equity at the end of the period by its value of equity at the beginning of that period, raise the result to an exponent of one divided by the number of years, and subtract one from the subsequent result.

Compound growth rate of equity (CAGR) $= \left(\frac{\text{Ending equity}}{\text{Beginning equity}}\right)^{1/\text{no.years}} - 1$

$$= \left(\frac{46{,}624}{5{,}000}\right)^{1/4} - 1 = 1.747 - 1 = 0.747$$

$$= 74.7\%$$

Conclusion:

The change in the value of equity is likely to increase by 64.4% justifying the managements' estimate.

3(b) Five aspects required from the Management team

There is very little information provided that would allow an assessment of the viability of the proposed management buyout. Information that would be necessary includes:

- Detailed cash flow projections for Villa Uganda Ltd preferably providing alternative scenarios using different economic assumptions. An NPV analysis might also be incorporated.
- The medium to long-term strategic plans of Villa Uganda Ltd.-Vision for the future measured in milestones.
- The business model- How the company is going to make the money, who pays, how much and from where?

- Full details of all the directors and key employees, to ensure that the company personnel have the necessary expertise , experience.
- Whether the company is prepared to offer warrants or other terms that would make a Shs 10 billion loan attractive to the lender; whether any security available including personal security from Directors.
- Funding-How much is the management team raising and how the money is going to be utilized by Villa Uganda Ltd.
- Legal Information-Investors will have a keen interest in legal opinions received, pending or potential litigation, discussions with regulatory and other government agencies and licenses, permits and consents.
- Management & Organization Information-Understanding Villa Uganda Ltd.'s structure, its team and their ability to execute is important to investors so they will typically request structural documents such as employee listings, organizational charts, and lists of advisory and board members. Bios and resumes for key players are typically requested as well
- Would Villa Uganda Ltd be prepared to accept one or more representatives of the microfinance company on its board of directors?

Question 4

(a)(i) Likely impact of changes on BUL's share price:
The price per share is given by:

$$P_0 = \frac{D_1}{K_e - g}$$

Where:

D_1 = the next year's dividend
K_e = the shareholders required return.
g = the expected rate of growth in dividends

The growth rate can be found from the expression

$5.0(1+g)^4 = 7.3$
Where g is the past (compound) growth rate

$(1+g)4 = 7.3/5.0 = 1.46$ OR $1/(1+g)^4$

$=0.6849$

From the present value tables:
g = 10% Thus :

P_o = (7.3p(1.1))/(16%- 10%) =8.03p/0.06 = 1.34

ii) With D_1 at just at 5.0 Using managerial expectation for the investment.

P_o = 7.3(1.1)/(16%-10%) = 5.0/0.02
= 2.50

b) To break even share price must not fall below 1.34
Thus solving for g:

1.34 = 5.0 /(16%-g) solving for g=12.3%

Which is marginally above the assessment of the more pessimistic managers.

4(**c) Possible reaction of BUL's shareholders and the market to the dividend cut:**

Until 2017 BUL has pursued a policy of distributing 40 to 50 percent of the profit after tax as dividend. Each year, it has offered a steady dividend increase even in 2016 when its earnings actually fell.

This was presumably out of reluctance to lower the dividend fearing an adverse market reaction and reflecting a belief that the earnings shortfall was temporary phenomenon.

In 2017 BUL offered a 12% dividend increase, the highest percentage increase in the time series, possibly to compensate shareholders for the relatively small increase (only 8%) in 2016.

It would appear that BUL has either already built up a clientele of investors whose interests it is trying to safeguard, or that it is trying to do so.

The proposed dividend cut to Shs 5.0 per share would represent a sharply increased dividend cover of 3.5 on the assumption that EPS also grows at 10% p.a. Such a sharp rise in the dividend safety margin is likely to be construed by the market as implying that business managers expect earnings to be depressed in the future especially as it follows a year of record dividend increase.

Such an abrupt change in the dividend policy is likely to offend its clientele of shareholders at best and worst to alarm the market as to the reliability of the future earnings,

4(d) Whether or not an increase in dividends is likely to benefit the shareholders:

Differing views exist on the company's share price. Several authors including M&M have argued that Dividend policy is irrelevant to the value of the company. Such assumptions are formulated under restrictive assumptions. If such conditions existed then shareholders would not value an increase in dividend payments.

However, there are several real world factors that are likely to influence the preference of shareholders towards dividends or retentions and these include;

- Taxation.
  In some jurisdictions dividends and capital gains are subject to different marginal rates of taxation usually with capital gains being subjected to a lower level of taxation than dividends.

- Brokerage fees;
  If shareholders a preference for some current income and are paid now or low dividends their wealth will be reduced if they have to sell some of their shares and incur brokerage fees in order to create current income. Shareholders especially the non institutional shareholders, often rely on dividends to meet their cash flow needs.

- The corporate tax treatment of dividends may favour a higher level of retention.
  If the company needs to finance new investments it is usually cheaper to use his is because most forms of external finance involve issues costs, which in the case of equity finance can be three percent or more of the funds raised.

- Information asymmetry may exist between shareholders and directors.
  If the market is not strong form efficient, shareholders may have less complete knowledge of the likely future prospects of the company than directors, which may influence the shareholders desire for the dividends or capital gains.
  The implication of an increase in dividends need to be considered by the company. Dividends are often regarded as an unbiased signal of the company's future prospects, an increase in dividends signaling a higher expected earnings

accompany should be careful to inform its shareholders of the reason for any increase in dividends.

- A further factor is the use that the company can make of funds**.**
  If the company has a number of possible positive NPV investments then shareholders will normally favour undertaking these investments (at least on financial grounds) as they will lead to an increase in shareholder wealth. As earlier mentioned, internal financing is cheaper than external finance and when other conditions are constant would lead to a preference for a retention. If however the company has relatively few projects and can only invest surplus cash in money market or other financial investments at an expected zero NPV, relative dividends or share purchase might be preferred.

QUESTION 5

5(a) Illustrating how GML could benefit if it acquired KEKO
An indication of the scope for improving KEKO Construction Limited can be obtained by examination their very financial ratios.

	GML	KEKO
Operating profit margin (PBIT)/sales	20%	16.6%
Asset turnover (sales/total assets)	1.80	1.36
Debtors collection period	31 days	50 days
Stock turnover	10.3	6.4
Current ratio	1.65:1	2.45:1

Based on the ratios above there are clear opportunities to improve KEKO construction limited performance by rationalization and restructuring of activities for example;

- KEKO's operating profit margin could be brought into line with General machinery Uganda Limited's profit Margin by a price increase and or a cost reduction.
- Keko construction limited stock levels look high by comparison there could well be stockholding economies in an expanded operation.
- KEKO Construction limited cash holding looks excessive; again centralized cash management may generate economies of scale
- KEKO Construction limited asset turnover is relatively low some assets could as well be sold off and others utilized more intensively.
- KEKO seems to have a scope of investment in debtors; introduction of such economies may as a result close the Gap between GML return on the assets of 36% and KEKO Construction limited present 22.5 percent**.**
- KEKO's current ratio is higher than GML, it has more resources to meet short term obligations**.**

5(b) Main features of the share buy backs and stock splits and why GML may use them (include impact on share price)

Features of Share repurchase

- Share repurchases are a way for companies to distribute earnings to shareholders other than the cash dividend. They are also a means of altering a target capital structure; supporting the share price during the periods of weakness and deterring unwelcome takeover bids. Companies typically repurchase shares either by making a tender offer for a block of shares, or buy buying back the shares in the open market.
- In the absence of taxation and transaction costs share repurchases and payment of the dividends should have the same effect on the share value. However the different treatment of taxation on dividends and capital gains may lead to a preference for share repurchases by investors.
- If the repurchase of shares is by means of a tender offer, this will always 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 future 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.

Motives of using share repurchase

- 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 earning potential than previously believed. However if this subsequently does prove 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.
- Return surplus to shareholders
- To increase underlying share value
- To support share price during periods of temporary weakness
- To achieve or maintain a target capital structure
- To prevent or inhibit unwelcome takeover bids.

Features of Share splits

- Splitting ordinary shares into a larger number with lower par value
- Share splits are the issue of additional shares at no cost to existing shareholders in proportion to their current holdings, but with lower per 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.

Motives of the share splits include:

- A company wishes to keep its share price within a given trading range.
- It is sometimes argued that some investors are deterred by high share price and that lower share price would ensure a broader spread of ownership.
- Shareholders actually loose from lower prices as the bid offer spread is often higher as a percentage of share prices for lower priced shares.
- Companies hope that the market will regard the share split as good news and that the share price will increase (relative to 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 dividend among others in subsequent periods.

ANSWERS TO TEST PAPER 5
CPA (U) JUNE 2019

Solution 1

To : The Board of Directors

From : The Financial Advisor

A Report to the Board of Directors of JCL that includes:

1(a). Financial viability of the J-suites Project

Based on the available information in the case study, the best suited approach is the NPV analysis:

Estimation of NPV of the J-Suite project:

	Year 0	Year 1	Year 2	Year 3	Year 4
	Shs m	Shs m	Shs m	Shs m	Shs m
Sales Revenue	-	39,000	49,140	61,327	70,128
Variable costs		(17,400)	(21,924)	(27,361)	(31,288)
Gross profit		21,600	27,216	33,966	38,840
Other expenses:					
Fixed costs per year		(3,000)	(3,150)	(3,276)	(3,407)
Marketing expenses		(5,300)	0	0	0
Tax depreciation		(13,000)	(9,750)	(7,313)	(21,938)
Taxable profits		300	14,316	23,377	13,495
Tax payable - at 30%		(90)	(4,295)	(7,013)	(4,049)
Add depreciation		13,000	9,750	7,313	21,938
Cash flows after tax		13,210	19,771	23,676	31,384
Initial investment	(52,000)				
Scrap value of NCAs					5,200
Working capital	(3,500)	(700)	(840)	(504)	5,544
Net cash flows per annum	(55,500)	12,510	18,931	23,172	42,128
Discount factor @14%	1.000	0.877	0.769	0.675	0.592
Present values	(55,500)	10,971	14,558	15,641	24,940
Net present value	10,610				

Observations / conclusion:

The project returns a positive NPV – an indicator that it is viable or profitable and worthy taking on unless there are other competing projects of the same 'profile'.

Workings:

Working – I:	Year 0	Year 1	Year 2	Year 3	Year 4
Sales volume (Q)		600	720	864	950
Growth rate			20%	20%	10%
	Year 0	Year 1	Year 2	Year 3	Year 4

Inflation rate		5%	5%	4%	4%
Selling Price (P) – '000		65,000	68,250	70,980	73,819
Sales revenue (PxQ) – Shs m		39,000	49,140	61,327	70,128
Working – II:					
Variable costs:					
	Year 0	Year 1	Year 2	Year 3	Year 4
Inflation rate		5%	5%	4%	4%
Cost per unit		29,000	30,450	31,668	32,935
Variable cost - Shs m		17,400	21,924	27,361	31,288

Working – III:					
Tax allowable depreciation:	Year 0	Year 1	Year 2	Year 3	Year 4
Opening WDV		52,000	39,000	29,250	21,938
Writing down allowance	25%	(13,000)	(9,750)	(7,313)	-
Balancing charge					-21,938
Working – IV:					
Working capital:	Year 0	Year 1	Year 2	Year 3	Year 4
Growth rate/ Inflation		20%	20%	10%	0%
WC Amount	(3,500)	(4,200)	(5,040)	(5,544)	
Incremental working capital	(3,500)	(700)	(840)	(504)	5,544

1(b). Risks in regard to J-Suites and how to mitigate them:

The project could face a number risks including the following:

a. Operational risks: the prospect of loss arising from failed procedures, systems or policies. Examples could include:

- safety hazards – and hence the need for safety procedures and various insurance mechanisms;
- Fraud and theft of materials and other resources – need for tight and clear processes and procedures;
- Failed procurement processes that could lead to cost over-runs and hence the needs for employment of professionals (or right people) and proper approval and supervision processes.
- Poor quality control – which could in extreme circumstances could lead to collapse of part or all the building or failure to sell the J-suite;
- Poor drawings; poorly written or poor execution of contracts – adequate diligence in all preparatory work will minimise its effects.

Mitigation of operational risks:

The proposed mitigation strategy for most risks usually includes the creation of new business processes or adjustments to existing processes. In the immediate aftermath of an incident that impacts operational risk, some businesses promulgate new policies and procedures by email. In the crush of their daily tasks, even the most willing and motivated employees often forget the new rules. Businesses that have already embraced workflow automation have the ability to quickly create new workflows, alter approval requirements, and create monitoring dashboards so that compliance with operational risk management procedures is ensured - compliance with the new risk mitigation procedures is enforced by the system.

Compliance with the new risk mitigation procedures is enforced by the workflow system.

When defining new workflows to deal with specific operational risks, there are a few guiding principles to keep in mind:

1. Identify and Divide Tasks - List the necessary steps for eliminating a particular risk. If they are currently being performed by a single individual or role, divide the tasks so that one role performs the tasks and another role checks or approves the result of the task.
2. Assign Tasks to the Right People - Faced with the need to operate with a lean headcount, some businesses ask individuals to wear multiple hats. Don't be so aggressive in trying to level workloads that you assign critical tasks to people who are not trained or not willing to take on the additional responsibilities.
3. Streamline and Automate Business Processes - If a task can be automated to reduce reliance on off-system information, you can close a significant risk hole. Replace internalized judgment with data-driven business rules to eliminate significant sources of human error.
4. Brainstorm the exceptions - Many risk events stem from the unforeseen exception situation that was not examined during the initial business process design. Rush orders, sudden staff departures, receipt of substandard raw materials, missed steps during the business' peak season, or product recalls are a few of the many exception situations that may introduce operational risk if there are no formal processes in place.
5. Measure Performance/Exceptions - Data is key and provides businesses with the means of validating their initial risk assessment. Is the frequency and impact severity in line with what you originally anticipated? Is the current mitigation strategy working, or do you need to tweak it? Are some individuals or departments better than others at reducing this risk should you move certain steps to different roles? If you are served with a lawsuit or face government review because of a particular risk, your historical data is often crucial to minimizing fees, judgments, and fines.

6. Adopt an ongoing approach - Risk assessment is only meaningful in the context of your current business situation. Last year's risks and mitigation strategies may now work in today's world. Review your risk assessment regularly (quarterly, semi-annually, or annually). If you need to tighten or loosen some of your business rules or change your workflows, this can be accomplished quickly with a workflow automation tool in place.

b. Financial risks: Customers may fail to pay in full – especially to those where credit may be extended; furthermore, interest rates could rise - which would push the cost of capital upwards. Financial risks cover foreign exchange risks where expenses could escalate as a result of fluctuating exchange rates.

Mitigation: hedging of interest rate and foreign exchange risks; proper credit assessment;

c. Strategic risks; these could arise in the construction sector or could face JHL in form of poor uptake of the J-Suites home type; the mitigation is proper research and forecasting should be undertaken prior to commencement of the project; adequate what if analysis.

d. Compliance risks; losses may arise as a result of failure to comply with regulatory authorities leading to fines or expensive rectification of errors of commission or omission. Mitigation may include: proper due diligence; checks and balances in the processes – including monitoring and evaluation; create a quality control or compliance unit; adequate training; involvement of external support – such as consultants.

e. Reputational risks; losses arising from loss of reputation – with the company's products failing to attract the projected demand or leading to lawsuits. This risk has increased in this era of social media, where damaging news spread very fast. Mitigation: There is need to monitor the media and be able to communicate efficiently and effectively at all times.

Other risks are possible but must not be a mere manifestation of the main categories of risks; for instance, a candidate may not earn credit for merely stating – say risk of loss of materials; or risk of workers going on strike!!

1(c). An analysis of the sensitivity of J-Suites to initial investment and any limitations of the analysis you may make.

Estimating sensitivity of J-Suite to initial investment:

The initial investment of the J-Suite project has been estimated at Ushs 52 billion; while the NPV has also been estimated at Ushs 10.6 billion;

A Ushs 10.6 billion change or increase in initial cost would wipe out all the estimated benefits or the positive NPV to nil/ zero;

Such a change would be an increase of 20.4% (or 10.6/52 x 100%) in the initial investment. Whereas such an increase is not very common in practice, it cannot be ruled out with price and foreign exchange rate variations especially in developing countries. Actually the Uganda Shilling depreciated by over 22% over the calendar year 2015, so it is not a rare occurrence.

We can however say that the project in not very sensitive to initial investment (much as we need to determine what other variable it is more sensitive to).

Limitations of sensitivity analysis:

a. The above analysis does not take into account what could be happening to other variables as the changes in initial investment happens; indeed if exchange rates increased, other costs would most likely face upwards to increase by the same or even higher magnitude;

b. Whereas it is determined that a 20.4% change in initial cost would wipe out all the positive NPV, the tool does not, say, provide an indication of the probability of this change occurring.

c. Whereas the analysis provides an indication of the impact of the change to the success of the project, there is no decision that can be made from the analysis above, instead only the basis of the decision is provided by the tool.

1(d). The usefulness of using alternative investment appraisal methods

Different investment appraisal methods come with different advantages and disadvantages or limitations; the different methods or approaches can thus be used to complement each other.

The particular exception taken by the Operations Director in regard to the *payback period method* is largely unwarranted as the method is strong in regard to:

a. Simplicity and clarity – as it helps management or Board understand: how quickly shall we recoup the investment? The indicated payback periods are simply an indication of how long it takes the project to 'refund' the investment; and the shorter the period the better – which can be an additional perspective in decision making;

b. Liquidity management: the approach recommends a project that would refund cash or the investment faster – thereby promoting liquidity of the company;

c. Risk management: Payback period also is good at helping decision makers manage risk. This because, the shorter the investment period, the better and this can be achieved through emphasis on shorter-term projects.

The Board is therefore encouraged to look at the information as complimentary rather than diversionary information; besides, a decision shall be based on one method not all of them - so there will be no potential for a mix-up in principles.

Note: the question specifically required value addition of the Payback period method and not its pros and cons – and as such, no credit would have been awarded for a discussion of the method's limitation or disadvantages that would have been the basis of the Operations Directors' concerns.

1(e). A recommendation on whether JCL should seek a Mudaraba or a Musharaka contract including the basis of your recommendation.

Both Mudaraba and Musharaka contracts are equity-based financing contracts offered by Islamic Finance Institutions (IFIs). With these contracts, the investor or IFI (rub-ul-mal) and the investment manager or corporation (mudareb) share the profits from the business venture, in which the funds are invested, in a pre-arranged agreement.

The key differences between the two contracts are two-fold.

i. With a Mudaraba contract (equivalent to direct equity in conventional finance):

- all losses are borne solely by the investor (IFI), although provisions can be set up to carry forward these losses against future profits, and
- the mudareb, as the expert in the business venture takes the sole responsibility for running the business.

ii. With a Musharaka contract (equivalent to venture capital in conventional finance):

- losses are shared between the two parties in proportion to their monetary investment or investment-in-kind, and
- both parties would participate in managing and running the venture jointly.

Recommendation (for one option as required):
Since JCL is (or appears to be) a well-managed company, the IFI can be asked for Mudaraba. This is partly because:

- There is no need for the IFI to Come into the management or altering of the governance of JCL;
- There is no fear of losses to be apportioned to the IFI – as they are not anticipated – based on the provided projections and the assumed experience.

Solution 2

2(a). The advantages of acquiring Mbao Hotels Limited

Advantages of the Mbao acquisition:

a. Entry into the Tanzanian market will be fast as it will straightaway have the necessary network from the onset or launch of operations.
b. Bangz will straightaway attain market information, market share and a network of hotels and level of good will/reputation.
c. Bangz will takeover management skills and local market knowledge in addition to cash and debt capacity, which are necessary for business growth.
d. The Bangz will not have to incur other start-up costs – which many times prolong the breakeven point of a new business venture.
e. In general, buying an overseas business can simplify a lot of the tedious details involved in entering a new market.

Issues to watch out for (what could go wrong in the execution):

i. Cultures in the Mbao Hotels may be different; there should be deliberate plans to introduce and pursue the desired culture.
ii. The cost of acquisition may be high – mainly as a result of over valuing the benefits. Proper valuation and due diligence should be undertaken prior to conclusion of the deal.
iii. Current employees: there should be a plan for utilization and integration of current employees of Mbao or otherwise, a clear termination strategy (severance arrangement) – which should be adequately provided for.
iv. There should be a plan on maximum utilization of resources and removal or elimination of duplications.

2(b). Advice on whether the Mbao deal should proceed:

There are basically two scenarios – Best case: where the cost of capital would reduce by 350 bps or 3.5% in magnitude and the worst case where COC would reduce by 150 bps or 1.5%. These are evaluated below:

Acquisition benefits: Best Case	
Current cost of capital - COC	18.00%
Reduction in cost of capital by	**3.50%**
Therefore new COC	14.50%
Additional cash flows – Tzshs bn	16.0
Present value of cash flows in perpetuity	110.3
Consideration for Mbao - Tzshs bn	102.0
Net present value of acquisition TzShs bn	8.3

Acquisition benefits: Worst Case	
Current cost of capital - COC	18.00%
Reduction in cost of capital by	1.50%
Therefore new COC	16.50%
Additional cash flows – Tzshs bn	16.0
Present value of cash flows in perpetuity	97.0
Consideration for Mbao - Tzshs	102.0
Net present value of acquisition Tzshs bn	(5.0)

Conclusion:

- In the best case scenario, the net present value of the acquisition is positive and the deal should be concluded.
- However, in the worst case scenario, the NPV becomes negative and the transaction would have to be declined.

2(c). Discussion of any four reasons why Mbao acquisition may fail to provide financial benefits to Bangz, and how to guard against such pitfalls:

Mergers and acquisitions usually fail because of the wrong motives on the part of management or the assumptions being different from reality. It is estimated that indeed 50% to 80% of mergers fail to add value in the USA[1] - with problems ranging from poor strategic motives e.g. overpayment for the target, to unanticipated events such as a particular technology becoming obsolete.

Some of the reasons responsible for this phenomenon of failure could include:

i. Agency theory; there is many times lack of a sense of objectivity on the likely outcomes on the part of management. Many times, managers take a decision and want to do the transaction no matter the cost, guided by self-interest. On the contrary however, there is no evidence that the decision is instigated by management – but they could be behind the scenes actors. Shareholders of Bangz should therefore be careful to act on unbiased advice.

ii. Market irrationality – this a common pitfall – where the firms are listed, and one is overvalued or undervalued and actors take advantage before the market corrects the irrationality [note: Bangz and Mbao are not listed].

iii. Window dressing: the value offered and accepted by Mbao could be higher than the perceived benefits – which could lead to reduction in value to Bangz. Appropriate valuation could be arrived at without anticipation or excitement.

iv. Leaving the customer out of the picture: the customer is still critical and they also need to be clearly and objectively incorporated in the communication and implementation strategies. Otherwise, they could disengage. Adverts explaining the changes should distributed effectively and major and previous customers should be contacted and appropriate information shared.

- Solution: always put the customer into the picture

v. Poor planning; this could lead to avoidable mistakes; mainly a result of excitement about the whole transaction or not acting in total good faith; such poor planning could also be manifested in all or majority of the assumptions not holding; but many times we can have genuine inability to predict success or realisation of benefits taking long – being affected by a longer 'learning curve' or slow speed of adoption to new systems.

- Solution: undertake thorough due diligence; set realistic objectives.

vi. Failed culture integration; cultures of the two establishments may not be identical and one may 'swallow' the other. Many times, culture is not well planned for – as the deal is not strategically well conceived. As a result, Bangz could lose some good employees in Mbao – sometimes referred to as 'merger syndrome' if they are not properly explained to and or if they develop any mistrust.

- Solution: proper culture planning; proper sensitisation; proper communication; transparency to all stakeholders.
- Furthermore, management need to take leadership in effecting the desired changes, and pushing it through.

Solution 3

3 (a). The best foreign exchange hedging mechanism .

RE: the ODL scenario

Option I: Using a forward exchange contract:

The amount payable is Tshs 90,000,000/- in three months' time;

The forward exchange rates are quoted as UShs/TShs 1.651 - 1.665

Using a forward exchange contract:

- the amount payable is UShs 90m x 1.665 = UShs 149,850,000

Option II: Using a money market hedge:

ODL needs to pay TShs 90 million in 3 months' time.

The aim will be to make sure they do not pay more in Uganda Shillings than is currently quoted, since the rates appear to be higher in three months' time.

[[The mechanism:

ODL can borrow UShs now for three months (Step A);

Convert the borrowing into TShs at spot rates (step B);

Invest the money in TShs at the investment rate (step C);

When the investment matures in 3 months, pay the supplier in TShs (step D)

And then, settle the UShs liability with interest (final - step E)

…. And ensure this would be cheaper than suffering higher exchange rates.]]

Starting with the end in mind (step D), the amount that will mature into TShs 90 million

= 90,000,000/(1+3.25%) = TShs 87,167,070/-

Note the investing rate in TShs is 13% per annum, so the rate for 3 months = 13%/4 = 3.25%

This money can be got at today's exchange rate of 1.637, equivalent to

= 87,167,070 x 1.637 = UShs 142,692,494

This is the UShs equivalent that we need to borrow now, and for three months at a rate of (18%/4) = 4.5%

The amount payable to the bank with interest is therefore

= 142,692,494 x (1 + 4.5%) = UShs 149,113,656

Option III: Making a lead payment.

The lead payment means ODL would have to pay in advance at the spot exchange rate => UShs 90m x 1.637 = UShs 147,330,000

The implication is that it would forego the interest income they would earn on such funds paid in advance => at the savings rate of 16%/4 for 3 months = 4%

The total cost of such a payment therefore is:

= 147,330,000 x (1+4%) = UShs 153,223,200

Summary of total costs per option

Forward exchange contract:	UShs 149,850,000 (2nd best option)
Money market hedge:	UShs 149,113,656 (least cost)
Lead payment:	UShs 153,223,200 (most expensive)

Conclusion: it is best to use the money market hedging mechanism.

3(b). Considerations in developing foreign currency hedging policy

i. Minimum tolerable loss: ODL should consider how much loss it is ready to bear; this is because hedges come with considerable costs such as commissions – yet they are usually ignored;

ii. Mechanisms to take advantage of favourable exchange rate movements; ODL should evaluate and accommodate actions to be taken in the event that foreign exchange rates move in favour of the company;

iii. Offsetting possibilities: the company should consider possibility of netting receipts and payments – and this can gradually be built into the operational structure of the company;

3(c). Purpose and strategies to stabilise a country's currency

It is usually the role of the central bank to stabilize a country's currency – a monetary policy operation also referred to as currency manipulation or currency intervention;

The purposes of currency stabilization may include:

i. Volatility erodes market confidence and affects both financial and real goods markets; investors will be unwilling to in an economy with unstable exchange rates as this could lead to significant losses. Such reluctance by investors would in turn reduce inflow of direct foreign investments and slow down economic growth, employment opportunities for its citizens – among other effects.

ii. Volatility of exchange rate also affects stability of prices of other assets; this will in turn affect the attractiveness of such assets;

iii. Volatility in exchange rates can also increase speculation, inflation rates – and the later will affect economic growth.

iv. Volatility also affects the competitiveness of a country's exports and this will hurt the economy and the exporters themselves.

Strategies of currency stabilization

- Controlling the inflation & interest rates: this is because influences the exchange rates through the *Fischer* effect/ theory; the lower the inflation rate and the interest rates the lower the potential changes in foreign exchange rates.

- Maintaining financial stability: financial stability could eliminate speculative tendencies fluctuations in market confidence, which eventually lead to fluctuations in many financial and economic variables – among them foreign exchange rates.
- Maintaining competiveness of exports: this would keep foreign exchange coming into a country which would keep an adequate supply of forex relative to the demand and therefore stabilising forex rates.
- Stability in a country foreign exchange reserves. One perspective to this is that such reserves could be utilised to intervene in financial markets; and the more stable the more likely the effect of the intervention.
- Minimising opportunity for speculative tendencies

Solution 4

4(a). Considerations - selecting between debt and equity financing:

An entity that is seeking financing should consider the following factors:

a. The speed or urgency at which funds are required; this is important because equity financing will usually take long to be realised (even up to two years or more), as shareholders – new or potential will need to be first convinced about the need and potential return and security. Such convincing could be through detailed presentations – focusing on a convincing medium to long-term business strategic plan.

b. Relative costs of either instrument; the interest cost or the required return to the provider of finance, and the fees/ commissions of raising the finances need to be evaluated and the cheaper one selected. Generally however, the cost of debt is usually more straightforward and relatively cheaper – at relatively low levels of debt.

c. The level of financial gearing of the borrowing company; with increasing levels of debt, the credit risk premium embedded in the pricing will increase, making debt relatively more expensive or altogether unavailable.

d. The existing capital structure relative to the desired capital structure; the lower the level of financial gearing, the higher the entity's capacity to borrow. An entity should therefore evaluate the level of debt vs the desired or optimal capital structure such that any new financial instruments can bring the entity closer to the desired level.

e. Security or collateral requirements and other requirements of the providers of finance; debt finance will usually require security or collateral, and availability of such collateral will influence the attractiveness or potential sources or sourcing of debt finance.

f. Availability of debt or equity; financial market may be devoid of certain instruments or amounts may not be adequate compared to the needed amounts; such a situation will dictate the instruments that can be issued. For example in Uganda, debt instruments on the capital markets are limited to few corporate bonds, and the rest are commercial bank loans and limited availability of development bank loans.

g. The needs of the entity; a long-term project may not be financed by un-matched debt instrument especially in a commercial enterprise; assuming the said expansion of GPL will have longer term benefits, such would disqualify loans of say 2 to 5 years – in preference to longer-dated instruments or equity. This can also be related to the repayment terms of the alternative debt instruments.

Recommendation or way forward for GPL:

In the case of GPL, since we not given a complete capital structure, it is considered safe to take on additional debt say in the D:E ratio of 60:40 or a conservative one say 50:50;

The recommendation is based on an assumption that debt is always increasingly cheaper at low levels of debt and increasing expensive after the optimal capital structure.

4(b). Advice to the Board on:

(i) Likely impact on value of the recommendation in 4(a) above:

- In the event that the D:E ratio of GPL is currently higher than 60:40 (as per the candidate's recommendation):
    - The lower resultant gearing would most likely lower the cost of capital as a result a higher debt servicing capacity, reduction in perceived risk by lenders, and increased earnings – which would result in a higher valuation for GPL.
- In the event that the D:E ratio of GPL is currently lower than 60:40 (as per the candidate's recommendation):
    - The increased gearing would negatively impact valuation of GPL given that the cost of capital would increase as a result of higher credit risk, reduction in earnings and likely reduced debt serving capacity.

(ii) Valuation of GPL – earnings and dividend growth models

- Earnings yield valuation method:

Earnings yield = Earnings per share/ Market value per share.

Therefore,

Market value per share = Earnings per share / earnings yield.

Since we are given:

Earnings yield = 18% while the earnings per share has been provided as Shs 480, then,

Therefore,

Market value per GPL share = 480/18% = Shs 2,667 per share.

Thus, the total value of GPL = Shs 2,667 x 5 million share

= Shs 13,333.3 million.

- The dividend growth model valuation method:

The dividend yield model is given by:

$$K_e = (D_o (1+g))/P_o + g$$

This can be re-arranged to make Po the subject and thus be used to determine the value of a share and consequently the value of a company.

Thus from the dividend yield formula,

$P_o = D_o(1+g) /(K_e – g)$

From the information given,

Dividend per share = 480 x 60% = Shs 288 per share;

To determine dividend growth rate:

Dividends have grown from Shs 256 per share to Shs 288 per share over three years.

This means that the growth rate g is given by:

$256((1+g)^3) = 288$

⇨ $(1+g)^3 = 288/256 = 1.1250$

⇨ $1+g = (1.1250)^{\wedge 1/3}$

⇨ $g = 0.04 = 4.0\%$ or approx. 4%

Ke = (Dividends paid or payable)/market value = 288/ 2,667 = 10.8%

$D_0(1+g) = 288 \times 1.04 = 299.52$

Therefore Po = 299.5/ (10.8% - 4.0%)

= Shs 4,405 per share

Total valuation of GPL would thus be in the region of Shs 22,038 million.

4(d). Possibility of issuing a hybrid instrument; how will it work:

Possibility of issuing hybrid instruments:

It is highly possible to issue instruments with characteristics of debt and equity at the same time – such as convertible bonds or even preference shares, which are not uncommon.

How it would work in practice:

A convertible bond: these assure the investor of some minimum cash flows, (commonly subsidised) in order to protect the investor from losses; but the bond can also be converted into equity if the stock prices and the terms of conversion favour the investor.

Preference shares: Preference share will attract a minimum fixed rate of return at a fixed minimum interest rate – referred to as preference dividends; and they also earn equity dividends. Preference dividends are fixed dividends paid as a percentage every year to the preference shareholders if net earnings are positive. After the payment of preference dividends, the remaining net profits are paid or retained or both depending upon the decision taken by the directors with guidance of management.

Solution 5 – *Mayo Supplies Limited*

Evaluation of the MSL CEO's statement:

The CEO's statement is wide-ranging as follows and largely technical:

> *…' … I am glad that the media now understands that MSL's value cannot be undermined by arbitrage pricing; our weighted average cost of capital remains around 13% - thanks to our excellent relations with shareholders and the providers of debt finance. … we shall continue to enhance our corporate governance structures, which is a sure way to provide a high and stable return to our shareholders … '.*

Note: given the wide-ranging and rather disjointed statement, technical phrases or words need to be defined, and assumed statements of facts evaluated for accuracy; and implied meanings or messages explained to our client.

Distinct parts of the CEO's remarks can be isolated and discussed as follows:

a) "… MSL's value cannot be undermined by arbitrage pricing"

Notes:

- *Need to describe arbitrage pricing theory – APT*
- *Relate APT to valuation of MSL*

APT Described:

Arbitrage pricing theory (APT) is a multi-factor asset pricing model based on the idea that an asset's returns can be predicted using the linear relationship between the asset's expected return and a number of macroeconomic variables that capture systematic risk. It is a useful tool for analyzing portfolios from a value investing perspective, in order to identify securities that may be temporarily mispriced.

How the Arbitrage Pricing Theory works

The arbitrage pricing theory was developed, as an alternative to the capital asset pricing model (CAPM). Unlike the CAPM which assumes markets are perfectly efficient, APT assumes markets sometimes misprice securities, before the market eventually corrects and securities move back to fair value. Using APT, arbitrageurs hope to take advantage of any deviations from fair market value.

However, this is not a risk-free operation in the classic sense of arbitrage, because investors are assuming that the model is correct and making directional trades—rather than locking in risk-free profits.

APT and valuation of MSL

- The CEO appears to rule out the possibility of arbitrageurs participating in the trading of MSL securities to their advantage and to the disadvantage of MSL shareholders – but it cannot be completely ruled out;
- Furthermore, the fundamental basis of APT is that the market is not efficient and as such, market participants can take advantage of those inefficiencies.
- In addition, it is not true that all investors base their perception or valuation of a company's shares based on APT – as there other alternative approaches to valuation that could lead to a distortion in the valuation of MSL's shares.

b) "… our weighted average cost of capital remains around 13% …thanks to our excellent relations with shareholders and the providers of debt finance":

- In here, the CEO refers to MSL's cost of capital as around 13%, and if he wanted to give a figure – he should have been specific;
- The information provided was insufficient or disjointed to enable us confirm the exact WACC of MSL as at the reporting date – 31 May 2019, and thus no confirmation of this figure was possible;
- On the other hand and admittedly, stakeholder management is a big issue in the corporate world;
- Both shareholders and other providers of finance need to have and maintain confidence and trust in the company and its management – which then shall influence their assessment of the company's risk; this trust can be built by

effective communication and putting in place strategies and initiatives that are evidently working;

- In effect, good PR machinery alone (the excellent relations) cannot keep the cost of capital low – as the WACC has many variables that influence it – both internal and external to the company;
- Another issue with this part of the CEO's statement is that we do not know whether the CEO wants to imply that the WACC is reasonable or low or what trend/direction it is taking…in which case we would then assess whether MSL is 'beating' the market averages in this regard or otherwise;
- It is therefore fair to comment that the CEO should rather focus on improving financial performance, risk management and optimising the capital structure and less on relations in order to keep the WACC low.

c) *"… continue to enhance our corporate governance structures, which is a sure way to provide a high and stable return to our shareholders"*

Defining corporate governance structures:

Put simply, corporate governance is a framework by which a company is controlled and directed in the most effective way. It involves a set of relationships between a company's management, its board, its shareholders and other stakeholders.

While the drive for good corporate governance is generally associated with publicly listed companies, the governance benefits to non-listed companies are less often talked about – in many countries, national codes of corporate governance set out practices and standards that are desirable but not mandatory for non-listed companies.

With non-listed companies as the main component of a nation's economic fabric, the role of good corporate governance in enhancing shareholder and investor value should not be minimized.

The core principles of good corporate governance are: fairness, accountability, responsibility and transparency.

'The corporate governance structure specifies the distribution of rights and responsibilities among different stakeholders such as the board, managers or shareholders, and spells out the rules and procedures for decision-making in corporate affairs. Good corporate governance requires an effective system of mutual checks and balances among the top corporate bodies'[2].

Benefits of good corporate governance:

Good corporate governance builds trust and predictability, hence generating comfort to investors – a consideration manifest in the ESG requirements (Environmental, Social, Governance) of a growing number of Private Equity funds across the world, particularly in impact funds.

In practice, how does good corporate governance contribute to building value?

Risk mitigation – An effective corporate governance framework helps to mitigate risks, providing shareholders in non-listed companies with the comfort that although their exits may be difficult, their interests will be safeguarded by the board and management. A good governance framework will also induce reflection on exit strategies, giving additional comfort to prospective shareholders deciding whether to invest in the company.

Improved capital flow – An increase in confidence by investors and banks in the company due to robust financial management reporting will not only improve access to capital, but also minimise both cost of capital and cost of equity, resulting in an optimized capital flow. Deciding on an appropriate capital structure is thus a key element of good corporate governance. Transparency, especially regarding everything of interest to investors, will command a lower risk premium, therefore lowering the cost of capital and equity.

Reputational boost – Transparency in a company's internal policies, control mechanisms and how it deals with its suppliers, vendors, media, staff and government bodies will boost its reputation and thus its brand value.

More effective, better decision-making – Good corporate governance also aims at a faster decision-making process by establishing a clear delineation of roles between owners and management.

Improved reporting – Improved reporting on performance in turn leads managers and owners to make more informed and fact-based decisions, leading ultimately to improving sales margins and reducing costs.

Focus on compliance – Good corporate governance will adequately rest on policies requiring the company to stay compliant with local laws and regulations; it will synchronize risk management and compliance to ensure the company has proper control mechanisms, meets its objectives and operates efficiently in terms of people, processes, technology and information.

Higher staff retention – An increase in staff retention and motivation can be expected, especially from senior staff, when the company has a well-defined and communicated vision and direction. A focus on the company's core business will also make it easier to penetrate the market and attract the interest of shareholders. Additionally, millennials – now the largest single group on the labour market in many countries – tend to rank an organisation's commitment to responsible business practices highly in their employment choices.

Limitation of disruptive behaviour and conflicts of interest – By establishing rules to reduce potential fraud and malpractices amongst employees; and avoiding conflicts

of interest namely through minority shareholders being given their share of voice by being represented by independent directors.

Over recent years, empirical evidence has emerged showing a correlation between corporate governance and stock market performance of listed companies (information more accessible). In non-listed companies, private equity investors typically show a greater appetite for companies more prone to embracing good corporate governance standards and practices.

Today, applying the principles of corporate governance has become a pre-requisite to reaping shareholder confidence and unleashing shareholder value. Increasingly, investors will be assessing the governance capital of target companies as closely as they scrutinise its technological and human capital. Good corporate governance also helps companies to weather the consequences of an economic downturn with more agility.

ANSWERS TO TEST PAPER 6

CPA (U) AUGUST 2019

Solution 1

1(a) Using the:

(i) Net present value (NPV) approach, advise KHL on the acceptability of its proposed investment;

NPV computation (All figures in Shs.'000)

Years	0	1	2	3	4
Sales revenue (W_1)		585,000	687,960	816,265	985,640
Variable Costs (W_2)		-351,000	-412,776	-489,759	-591,384
Contribution		234,000	275,184	326,506	394,256
Fixed cost (W_3)		-22,000	-23,100	-24,255	-25,468
TAD 25% (W_4)		-150,000	-112,500	-84,375	-253,125
Taxable Profit		62,000	139,584	217,876	115,663
Tax at 30%		-18,600	-41,875	-65,363	-34,699
Capital allowances		150,000	112,500	84,375	253,125
Cash flows after Tax		193,400	210,209	236,888	334,089
Initial Investment	-600,000				
Working Capital W_5	-16,000	-800	-840	-882	18,522
Net Cash flows	-616,000	192,600	209,369	236,006	352,611
PVIFs at 16%	1.000	0.862	0.743	0.641	0.552
Present values	-616,000	166,021	155,561	151,280	194,641
NPV					51,503

Alternatively;

NPV computation (All figures in Shs.'000)

Years	0	1	2	3	4
Sales revenue (W_1)		585,000	687,960	816,265	985,640
Variable Costs (W_2)		-351,000	-412,776	-489,759	-591,384
Contribution		234,000	275,184	326,506	394,256
Fixed cost (W_3)		-22,000	-23,100	-24,255	-25,468
Taxable Profit		212,000	252,084	302,251	368,788
Tax at 30%		-63,600	-75,625	-90,675	-110,636

Profit after tax		148,400	176,459	211,576	258,152
Tax relief on TAD (W4)		45,000	33,750	25,313	75,938
Initial Investment	-600,000				
Working Capital W_5	-16,000	-800	-840	-882	18,522
Net Cash flows	-616,000	192,600	209,369	236,007	352,612
PVIFs at 16%	1.000	0.862	0.743	0.641	0.552
Present values	-616,000	166,021	155,561	151,280	194,641
NPV					51,503

Workings

W1- Sales Revenue in Shs.'000'

Years		
1	13,000×45,000	585,000
2	585,000 x 1.12 x 1.05	687,960
3	687,960 x 1.13 x 1.05	816,265
4	816,265 x 1.15 x1.05	985,640

W2 - Variable Costs in Shs.'000'

Years		
1	13,000x 27,000	351,000
2	351,000 x 1.12 x 1.05	412,776
3	412,776 x 1.13 x 1.05	489,759
4	489,759 x 1.15 x 1.05	591,384

W3- Fixed costs in Shs.'000'

Years		
1		22,000
2	22,000 x 1.05	23,100
3	23,100 x 1.05	24,255
4	24,255 x 1.05	25,468

W4 Working capital in Shs.'000'

Years		WC required	Incremental WC
0	16,000	16,000	(16,000)
1	16,000 x 1.05	16,800	(800)
2	16,800 x 1.05	17,640	(840)
3	17,640 x 1.05	18,522	(882)
4	WC recouped = (16,000+ 800 + 840 + 882)		18,522

W5. Tax savings on Capital Allowances in Shs.'000'

Years		TWDV	TAD	Tax saving (30%)
	Cost	600,000		
1	25 % x 600,000	(150,000)	150,000	45,000
		450,000		
2	25% x 450,000	(112,500)	112,500	33,750
		337,500		
3	25% x 337,500	(84,375)	84,375	25,313
		253,125		
4	Balancing allowance	253,125	253,125	75,938
	Residual value	0		

Advise: Based on the NPV being positive, the proposed project is viable and should be invested in.

1(b) Discounted Payback period for Duplex project:

Discounted payback period *is a variation of payback period which uses discounted cash flows while calculating the time an investment takes to pay back its initial cash outflow.*

$$\text{Discounted Cash Inflow} = \frac{\text{Actual Cash Inflow}}{(1 + i)^n}$$

Where,

i = is the discount rate; and
n = is the period to which the cash inflow relates.

Computation of discounted payback period (All figures in Shs.'000)

Year	Net Cash Flow	PVIFs	PVs	Cumm. PVs
0	-616,000	1.000	-616,000	-616,000
1	192,600	0.862	166,021	-449,979
2	209,369	0.743	155,561	-294,418
3	236,006	0.641	151,280	-142,138
4	352,611	0.552	194,641	51,503

Discounted payback period = 3 + (142,138 /94,641) = 3.73 years

(c) Asses the percentage change in price for the duplex project to have a zero-NPV

Sensitivity to the selling price = NPV / PV of the revenue flows.

(All figures in Shs.'000)

Years	Year 1	Year 2	Year 3	Year 4
Sales Revenue	585,000	687,960	816,265	985,640
Tax at 30%	-175,500	-206,388	-244,880	-295,692
Rev. after tax	409,500	481,572	571,385	689,948
Discount factor at 16%	0.862	0.743	0.641	0.552
Present Values	352,989	357,808	366,258	380,851
Total PV of sales revenue				1,457,906

Percentage change in price for the above project to have a zero-NPV would be

= Project NPV /PV of the sales revenue

(51,503/1,457,906) = 3.53%

Comment:

For NPV to become zero, the selling price for the Duplex project must reduce by 3.3 %

(d) Advise KHL whether to adopt IRR investment appraisal approach to all its future investment.

It's important for KHL to analyse the advantages and disadvantages of internal rate of return before applying the technique to all its projects. IRR technique has certain strengths but may not be suitable for some projects that are mutually exclusive.

Advantages of Internal Rate of Return

(i) Time Value of Money: IRR considers the time value of money in evaluating a project which takes into consideration the risk that comes with future cash flows.

(ii) Simplicity: IRR is very simple to interpret after the IRR is calculated. It is very easy to visualise for managers and that is why this is preferred.

(iii) Hurdle Rate Not Required-In capital budgeting analysis, the hurdle rate, or cost of capital, is the required rate of return at which investors agree to fund a project. It can be a subjective figure and typically ends up as a rough estimate. The IRR method does not require the hurdle rate, mitigating the

risk of determining a wrong rate. Once the IRR is calculated, projects can be selected where the IRR exceeds the estimated cost of capital.

(iv) IRR uses cash-flows as opposed to accounting profits which are subject to accounting assumptions.

Disadvantages of Internal Rate of Return

(i) Economies of scale ignored or size of the project: One disadvantages of IRR method is that it ignores the benefits of economies of scale. For example, under IRR a project value of Ugx 10 million with 50% rate of return may be preferred over another project whose value is Ugx 100 million but with 10% rate of return when the benefit from a Ugx 100 million project at 10% return will result in a benefit of Ugx 10 million while the project of Ugx 10 million with a return of 50% will give the investor only 5 million.

(ii) Impractical implicit assumption: IRR implicitly assumes that the positive future cash flows are reinvested at IRR. If a project has low IRR, it will assume reinvestment at a low rate of return and on the contrary if the other project has very high IRR, it will assume reinvestment rate at the very high rate of return. This situation is practically not valid. At the time you receive those cash flows; having the same level of investment opportunity is rarely possible.

(iii) IRR fails to measure the return on investment in absolute terms. It measures% returns and this may cause ranking problems in conditions of mutual exclusivity.

(iv) Ignores Future Costs: IRR method only concerns itself with the projected cash flows generated by a capital injection and ignores the potential future costs that may affect profit. If you are considering an investment in trucks, for example, future fuel and maintenance costs might affect profit as fuel prices fluctuate and maintenance requirements change. A dependent project may be the necessity to purchase vacant land on which to park a fleet of trucks, and such cost would not factor in the IRR calculation of the cash flows generated by the operation of the fleet.

(v) Ignores Reinvestment Rates: Although the IRR allows you to calculate the value of future cash flows, it makes an implicit assumption that those cash flows can be reinvested at the same rate as the IRR. That assumption is not practical as the IRR is sometimes a very high number and opportunities that yield such a return are generally not available or significantly limited.

(vi) Not ideal when comparing mutually exclusive projects. This means that if you decide to accept one of the projects, you can't accept the other.

(e) Discuss the appropriateness of Musharaka, Ijarah and Istisna'a products to KHL.

Appropriateness of Musharaka*:*

- Musharakah is similar to a joint venture. It allows equity participation by the parties, who finance a project in agreed proportions in either cash or kind. Any profits arising from the project are shared by the two parties according to the ratio agreed in the original contract. Conversely, any losses occurring from t project are distributed strictly in proportion to capital contributions and any participant providing management or technical expertise may also charge a fee.

- The proportion of profit must be agreed upon at the time of effecting the contract. Otherwise the Musharaka is not valid.

Appropriateness of Ijarah:

Ijara (lease) structures

- The Ijara is a contract where the bank buys and leases out equipment required by the client for a rental fee. The duration of the lease and rental fees are agreed in advance. Ownership of the equipment remains with the lessor bank, which will seek to recover the capital cost of the equipment plus a profit margin out of the rentals payable.

- There are two types of Ijara that is operating leases and finance lease. In a finance lease, the obligation to purchase the equipment at the end of the lease and the price at which the assets will be bought is pre-agreed. Rental fees already paid constitute part of the final purchasing price.

- In operating lease, the lessor leases the assets lessee for a pre-agreed period and the lessee pays pre-agreed periodic rentals. At the end of the lease term, the lessee can request to extend the lease period or hand the asset back to the lessor.

- In both forms of Ijara, the lessor is the owner of the asset and incurs all risks associated with ownership while the lessee bears the responsibility of wear and tear, day to day maintenance and damages except that the lessor is responsible for major maintenance and insurance of the asset.

Appropriateness of Istisna'a:

- Originally used to finance the sale of unripe fruit and other foodstuffs, in present day applications it has been used for the advance funding of major industrial projects or large items of equipment such as turbines for power plants, ships or aircraft, earth moving equipment.

- The Islamic financial institution funds the manufacturer during the construction of the asset, acquires title to that asset on completion and either immediately passes title to the developer on agreed deferred payment terms or, possibly, leases the asset to the developer under an Ijara arrangement.

(f) Comment on the ethical issues associated with the CEO's advice to cousin regarding investment in KHL

The action of the CEO is what we refer to as *'insider dealing'*- the practice of trading on the stock exchange to one's own advantage through having access to confidential information. This practice is illegal and unethical.

The Ethics Involved in Insider Trading:

- People who engage in insider trading are thought to be completely devoid of ethical values. The practice breaks individual rights, and destroys the competition and will most likely have a negative market response.

- Insider trading is also associated with fraud or violation of fiduciary duty; it involves engaging in financial investment decisions using non- publicly available information.

- Such action is considered dishonest since it affects other market participants unfairly. If insiders (e.g. the CEO) have information that others don't have, they will have a bigger advantage over the rest of the stakeholders. If the other stakeholders had knowledge of this information, they may have possibly acted in a different way and enjoyed the same advantage as the insiders.

Solution 2

2 (a) Evaluate the hedging outcomes using a forward rate agreement if:

i. PLR increased to 22.25%

- ✓ FEL will invest in 4v9 which locks the company into an FRA at 6.68% and a loan at a rate of 24.25% (PLR + 2%).

- ✓ If FEL signs FRA today and in four months later on 1st November 2019, PLR increases to 22.25%, the company will then borrow at the rate of 24.25% (PLR +2%).

- ✓ In addition, FEL will receive a compensation of 17.57% (24.25% - 6.68%), which brings the loan cost down to the agreed/ FRA of 6.68%

Outcome in Shs.		
Loan interest payable	19.8m x 5/12 x 24.25%	= 2,000,625
Less compensation	19.8m x 5/12 x 17.57%	= (1,449,525)
Net interest Paid		551,100

Effective annual interest rate of 0.0668 or 6.68% (551,100/19.8 m) x (12/5)

ii. PLR decreased to 18.25%

- FEL will take a loan at a rate of 20.25% (PLR + 2%)
- If FEL signs FRA today and four months later on 1st November 2019, PLR decreases to 18.25%, the company will then borrow at the rate of 20.25% (PLR +2%).
- The company will receive a compensation of 13.57% (20.25%- 6.68%) to bring the loan cost up to the agreed (FRA) of 6.68%

Outcome in Shs.

✓ Loan interest payable	19.8m x 5/12 x 20.25%	=1,670,625
✓ Less compensation	19.8m x 5/12 x 13.57%	=(1,119,525)
✓ Net interest Paid		551,100

✓ Effective annual interest rate of 0.0668 or 6.68% (551,100/19.8m) x (12/5)

2(b). Evaluate the financial consultant's comments on the current situation of FEL;

"FEL is faced with an interest rate risk, which can be mitigated by a forward rate agreement, interest rate futures or interest rate options"

Interest rate risk

The interest rate risk is the risk that an investment's value will change due to a change in the absolute level of interest rates, in the spread between two rates, in the shape of the yield curve, or in any other interest rate relationship.

Or the probability that the market interest rates will rise significantly higher than the interest rate earned on investments such as bonds, resulting in their lower market value. This risk is higher on long-term bonds. FEL is thus faced with this risk because of the need to borrow 19.8 million to cover its budget deficit in November 2019.

This risk can be mitigated by a forward rate agreement, interest rate futures or interest rate options.

Forward rate agreement

A Forward Rate Agreement (FRA) is an agreement between two parties who want to protect themselves against future movements in interest rates. By entering into an FRA, the parties lock in an interest rate for a stated period starting on a future settlement date, based on a specified notional principal amount.

The buyer of an FRA enters into the contract to hedge against future increase in interest rates. This occurs when a company believes that interest rates may rise and wants to fix its borrowing cost today. The seller of the FRA wants to protect itself from a future decline in interest rates. This strategy is used by investors who want to hedge the return obtained on a future deposit.

The FRA is a very flexible instrument and can be tailored to meet the needs of both the buyer and seller to protect themselves against the volatility in interest rates which affect their future borrowings or investments.

Interest rate futures

An interest rate futures contract is a futures contract, based on an underlying financial instrument that pays interest. It is used to hedge against adverse changes in interest rates. Such a contract is conceptually like a forward contract, except that it is traded on an exchange, which means that it is for a standard amount and duration.

The interest rate futures are used to hedge interest rate risk. For example, a business that has borrowed funds can hedge against rising interest rates by selling a bond futures contract. Then, if interest rates do in fact rise, the resulting gain on the contract will offset the higher interest rate that the borrower is paying.

Conversely, if interest rates subsequently fall, the borrower will experience a loss on the contract, which will offset the lower interest rate now being paid. Thus, the net effect of the contract is that the borrower locks in the beginning interest rate through the period of the contract.

Interest rate option

An interest rate option (IRO) is an agreement between a buyer and seller (banks) that gives the purchaser a right but not obligation to lend or borrow a predetermined fixed amount of money at a predetermined interest rate and time. It gives the buyer the right to receive a cash payment if market interest rate of a reference rate, usually the CBR or LIBOR, specified in the contract, is higher or lower, depending on the option, than the strike rate of the option.

The amount of the payment will be based on the difference between the market rate on the settlement date and the strike rate multiplied by the notional principal, specified in the option contract, to calculate the total payment.

Banks are the main sellers of interest-rate options. Clients are mostly corporations who need to borrow at some point in the future, so they want to hedge against adverse changes in interest rates during the interim. Because IROs are settled in cash, the client does not need to borrow from the bank that sold it the IRO.

If the IRO is in the money and the client exercises the option, then the bank pays the cash settlement to the client. IROs have no secondary market, but if the client wishes to terminate the option before expiration, then the IRO can be sold back to the bank for residual or fair market value.

2 (c). Advice to FEL directors on the factors that may influence the yield curve in an economy

Yield Curve describes the relationship between bond and the term to maturity. The yield curve is usually upward-sloping, but it can sometimes be flat or downward-sloping. There are three theories that try to explain the yield curve shapes.

Market Segmentation Hypothesis – This theory suggests that the slope of the yield curve will reflect the conditions in different segments of the market. This theory holds that the major investors are confined in a particular market segment and will not switch segment even if the forecast of likely interest rates changes.

It is assumed that there are different categories of investors with different needs and time horizons, who focus on different segments, of the yield curve.

The market segmentation theory suggests that there are different players in the short-term end of the market and the long-term end of the market. As a result the two ends of the curve may have different shapes, as they are influenced independently by different factors

Liquidity preference Hypothesis – Investors have a natural preference for more liquid (shorter maturity) investments. They will need to be compensated if they are deprived of cash for a longer period.

Preference for liquidity and risk avoidance, explains the shape of yield curve. The longer the time to maturity the greater the risk of illiquidity and higher the compensation.

Therefore the longer the maturity period, the higher the yield required leading to an upward sloping curve, assuming that the interest rates were not expected to fall in the future.

Expectations Hypothesis – This theory states that the shape of the yield curve varies according to investors' expectations of future interest rates. Investor's expectation asserts dominance. The slope reflects investors' expectations about future interest and inflation rates. A curve that rises steeply from left to right indicates that rates of interest are expected to rise in the future. There is more demand for short-term securities than long-term securities since investors' expectation is that they will be able to secure higher interest rates in the future so there is no point in buying long-term assets now.

Government policy on interest rates may be significant too. A policy of keeping interest rates relatively high may have the effect of forcing short term interest rates higher than long term rates. Similarly, a government may have a policy of very low short term interest rates.

Solution 3

To: Board of Directors of JSI
From: Financial consultant
Date: Exam Date
Subject: Capital Assets Pricing Model, Systematic and unsystematic risks.

3 (a). Using CAPM, advise JSI on the rate of return to be applied on the investment projects in the oil sector

$$\beta_a = \left[\frac{V_e}{(V_e + V_d(1-T))}\beta_e\right] + \left[\frac{V_d(1-T)}{(V_e + V_d(1-T))}\beta_d\right]$$

Since debt is assumed to be risk free, convert the geared beta of the new sector into an ungeared beta (asset beta);

$$\beta_a = \left(\frac{V_e}{Ve + V_d(1-T)}\beta_e\right)$$

β_a $= \frac{80\%}{80\% + 20\%\ (1\text{-}0.3)}$ x 1.8 = 1.53

Use the calculated ungeared beta to calculate the geared beta that reflects the company's own capital structure;

$\beta_e = \beta_a \times \frac{V_e + V_d\,(1\text{-}T)}{V_e}$

$= 1.53 \times \frac{60\% + 40\%\ (1 - 30\%)}{60\%}$

$= 2.244$

Use the equity beta calculated above to calculate the project's cost of equity;

$K_e = Rf + \beta_e\,(Rm - Rf)$

$= 7\% + 2.244(20\% - 7\%) = 36.17\%$

Determine cost of debt;

$K_d = Rf\ (1 - T)$

$= 7\%\ (1 - 30\%) = 4.9\%$

Determine the appropriate weighted cost of capital/rate of return since the project will be financed by both debt and equity;

WACC = 36.17% x 60% + 4.9% x 40% = 23.66%

3 (b). Discuss the assumptions of the capital asset pricing model (CAPM), and how they relate to the "real world" investment decision

1. The market is composed of many small investors, who are price-takers; i. e., perfect competition. This assumption was fairly realistic until recent years when institutional investors increasingly began to influence the market with their large transactions, especially those transactions via program trading.

2. All investors have the same holding period. Obviously, different investors have different goals, and thus have different holding periods.

3. It assumed that investors may borrow or lend any amount at a fixed, risk-free rate. This assumption is obviously false. However, the model can be modified to incorporate different borrowing and lending rates.

4. Investors pay no taxes on returns and incur no transaction costs. Obviously, investors do pay taxes and do incur transaction costs. The tax differentials across several types of investment income and across different income levels have however been lessened as a result of the income tax simplification of 1986. The active trader should be sure that he or she is not trading himself/herself out of a profit situation and into a loss situation and making profits for the broker. In general, this assumption is not a serious violation of "real world" scenarios.

5. All investors are mean-variance efficient. This assumption implies that all investors make decisions based on maximizing returns available at an acceptable risk level; most investors probably make decisions in this manner. However, some investors are pure wealth maximisers (regardless of the risk level); and other investors are so risk averse that avoiding risk is their only goal.

6. All investors have homogeneous expectations, meaning that given the same data all investors would process the data in the same manner, resulting in the same risk/return assessments for all investment alternatives. Obviously, we do not have homogenous expectations; one only must read the differing recommendations of various analysts to realize that we have heterogeneous expectations.

3 (c). Advise JSI on the differences between systematic and unsystematic risks

- Unsystematic risk, also known as specific risk, diversifiable risk or residual risk, is the type of risk associated with a specific company or industry.

- Systematic risk, also known as market risk or un-diversifiable risk is the risk inherent in an entire market or entire market segment. Also referred to as volatility, systematic risk consists of the day-to-day fluctuations in a stock's price.

- Systematic risk cannot be controlled while unsystematic risk can be controlled

- Systematic risk is caused by external factors such as political instability, changes in taxation laws and natural disasters while unsystematic risk is caused by internal factors such as staff strike, and breakdown of machinery.

- Systematic risk cannot be avoided while unsystematic risk can be avoided through diversification.

3 (c) (ii). Ways by which JSI may mitigate its systematic and unsystematic risks

Unsystematic risk: Can be mitigated against through diversification. E.g. an investor may use portfolio diversification to manage this risk by investing in a variety of assets.

Systematic risk: can be mitigated through the following ways:

- *Risk avoidance (elimination of risk)* – Completely avoiding an activity that poses a potential risk. However, by avoiding risk we forfeit potential gains, in with investments.

- *Risk transfer (insuring against risk)* - Most commonly, this is to buy an insurance policy. The risk is transferred to a third-party entity (in most cases an insurance company).

- *Risk reduction (mitigating risk):* This is the idea of reducing the extent or possibility of a loss. This can be done by increasing precautions or limiting the amount of risky activity through hedging, or investing in information to be better informed, thus reducing the uncertainty.

- Risk retention (accepting risk): Involves accepting the risk. Even if the risk is mitigated, if it is not avoided or transferred, it is retained. Retention is effective for small risks that do not pose any significant financial threat. The financial status of the family or individual will determine the acceptability of a risk.

Solution 4 (a)

To: CEO, Kubito Limited
From: CFO, Kubito Limited
Date: Exam Date
Subject: Impact of Gearing on Cost of Capital

Once debt is introduced in the capital structure of the company, the WACC of the company initially reduces owing to the tax relief that comes with debt finance because interest is tax deductible. Provided below is the assessment of the likely impact on KL of raising debt capital to finance the construction of a processing plant in Tanzania.

The analysis is based on the following Assumptions:

- All earnings after tax are paid out as dividends.
- Interest expense is tax allowable
- No growth in dividends is anticipated in the foreseeable future.

At the current capital structure:
EAT = PBIT – Tax expense
=240m – (30% x 240m)
= Shs 168 million.
Total market capitalisation = No. of shares x market price per share
= (Shs 2.4 billion/1,000) x 1,000 x 1.2
= 2.4 million shares x 1,000 x 1.2
= Shs 2,880 million
K_e = 168m/2,880m x 100 = 5.83%

When equity is replaced by debt, the value of the company will increase as below;

<u>At the proposed debt level of Shs 500 million:</u>
Revised earnings after tax in UGX.

PBIT	240m
Less: Interest (15% x 500m)	<u>75m</u>
PBT	165m
Less: Tax (30% x 165m)	<u>49.5m</u>
PAT	<u>115.</u>5m

Value of KL = Value (all equity) + (Debt x tax rate)
= 2,880m + 500m x 30%
= 3,030m
Market value of equity = Total value – value of debt
= 3,030 m – 500 m
= 2,530 m
Ke = 115.5m/2,530m x 100 = 4.56%

WACC = (4.56% x 2530m/3,030m) + (15% x (1-30%) x 500m/3,030m)
= 5.49%

At maximum debt
Maximum debt = Shs 500 m/0.4 = Shs 1,250 m
Revised earnings after tax in UGX.

PBIT	240 m
Less: Interest (15% x 1,250m)	187.5m
PBT	52.5m
Less: Tax (30% x 52.5m)	15.75m
PAT	36.75m

Value of KL = Value (all equity) + (Debt x tax rate)
= 2,880m + 1,250m x 30%
= 3,255m
Market value of equity = Total value – value of debt
= 3,255 m – 1,250 m
= 2,005 m
K_e = 36.75m/2,005m x 100 = 1.83%

WACC = (1.83% x 2,005m/3,255m) + (15% x (1-30%) x 1,250m/3,255m)
= 5.16%

Conclusion: From the above analysis, it is clear that raising debt finance will initially lower the cost of capital from 5.83% when the company is fully equity financed to 5.49% at minimum debt of Shs 500 million.

Further increase in gearing from Shs 500 million to a maximum of Shs 1,250 million will additionally result into reduction in cost of capital from 5.49% to 5.16%.

Solution 4 (b)

The Modiglian and Miller's model is based on a number of assumptions which may be unrealistic in the practical world as discussed below.

- Investors are rational and are able to predict performance of companies: This assumption may not be valid as some investors are irrational and can take on poor performing investments for different reasons.
- Existence of perfect capital markets: In practice, not all markets are perfect, impact markets also exist where there is even partial or non-disclosure of price information on securities.

- Information is readily available at no cost: This assumption is not valid to the extent the existence of imperfect markets in the real world result into non-disclosure of some information.

- No transaction costs to constrain trading: The assumption is invalid as no trading can be done without associated costs like brokerage fees.

- Investors can borrow at risk free rate: The assumption may not hold as the providers of funds (lenders) price their lending after incorporating a risk premium to cater for the possible defaults and time value of money.

- The M&M model ignores other associated costs of gearing that a company may suffer as a result of increased gearing e.g bankruptcy costs, tax exhaustion etc.

- The M&M model does not take into consideration other forms of taxation other than the corporation tax.

The above notwithstanding, the M&M model is valid to the following extent.

- The assumption that interest expense is tax deductible is valid as this is an allowable expense in many tax regimes including Uganda.

Solution 5

5 (a) (i) market value of redeemable debt:

- ✓ Here the company pays interest for the loan tenure and then repays the principal loan.
- ✓ Market value of the debt = Future expected Income stream from the loan notes discounted at the investments required return.
- ✓ The expected Income stream = (interest paid + principal)

(a) (ii) Irredeemable debt.

- ✓ The company has no intentions of paying the principal but to pay interest for ever.
- ✓ Market value of the debt = Future expected Income stream discounted at the investors required return.
- ✓ Where future expected Income stream = Interest to perpetuity

(a) (iii) Redeemable preference shares

- ✓ Here the company pays preference dividends for a number of years and then repays the par value of preference shares.
- ✓ Market value of the Preference shares = Future expected dividend stream from the preference shares discounted at the investments' required rate of return.
- ✓ The expected Income stream = (dividend income + par value of preference shares)

5(b). Assess the current market value of the 10% zero-coupon bond (June 2026), and the likely consequences if CBR decreased by 3% or increased by 3.0%.

A zero coupon bond is a type of bond that doesn't make a periodic interest. Since the holder (purchaser) won't be receiving any periodic interest payments, the only

time he'll receive payment from the issuer is when the bond matures. When the bond is originally issued, the purchase price is intentionally set low to motivate investors to buy.

Pricing

Maturity dates and interest rates dictate the price of zero coupon bonds. When interest rates are high, the purchase price is lower. A maturity date far off in the future will also cause the zero coupon bond to have a lower price compared to one that's maturing sooner. The interest rate remains fixed throughout the life of the zero coupon bond, so the price to buy the bond has to change throughout its life to match equivalent yields already out there in the market.

Formula:

The basic method for calculating a zero coupon bond's price is a simplification of the present value (PV) formula.

The formula is price = $M / (1 + i)^n$ where:

- *M* = maturity value or face value of the bond
- *i* = required interest yield
- *n* = number of periods until maturity

a) Market value of a Zero coupon bond (June 2027)

Face valve or Maturity value (M) = 100

Interest rate yield = Current CBR of10% divided by 2 = 5%

Number of periods until maturity times 2 = 9 x 2 = 18 periods.

Price = 100/ (1 + 5%) ^18 = 41.55

Interpretation: The present value of a zero coupon bond stock providing a 10% rate of return or yield by paying out Shs.100 at maturity is Shs.41.55 per stock

i) Consequences if CBR is reduced by 3 %

Period = 18 years

Interest yield = (10%- 3%)/2 = 7%/2 = 3.5%

Price = 100/ (1 + 3.5 %) ^18 = Shs.53.83 per stock

ii) Consequences if CBR is increased by 3 %

Period = 18 years

Interest yield = (10%+ 3%)/2 = 13%/2 = 6.5%

Price = 100/ (1 + 6.5 %) ^18 = Shs.32.2 per stock

Comment:
In an efficient market, a reduction in interest yield (CBR) by 3% results into an increase in the market value of the bond stock from Shs.41.55 to Shs.53.83 per stock whereas an increase in interest yield (CBR) by 3% results into a reduction in the market value of a bond from Shs.41.55 to Shs.32.2 per stock.

5(c). Rationale for support or otherwise of long-term debt:

For investors, long-term debt is classified as simply debt that matures in more than one year. Investing in long-term debt includes putting money into debt investments with maturities of more than one year and this has the following advantages.

- Generally, their returns are aligned with the prevailing fixed deposit returns and the investor gains.
- Inventors in long-term debt usually benefit from interest over a long period of time.
- In most cases long-term debt is convertible into equity, thus the key advantage is that you can seamlessly shift the money from a debt fund to an equity fund or any other scheme from the same fund house.
- Long-term debt are usually are more tax efficient.
- Long term debts like bonds are less risky as a fixed interest is guaranteed.

ANSWERS TO TEST PAPER 7
CPA (U) NOVEMBER 2019

Question 1

To: Chief Executive Officer, SWTL
From: Finance Manager
Date: Exam date
Subject: Financial Viability of the Proposed Bus Project.

(a) (i) Evaluation of the project viability
Determining PBIT (Accounting profits) in Shs '000'

Years	1	2	3	4
Revenue	3,985,800	4,185,090	4,519,897	3,762,814
Direct cost	(2,989,350)	(3,138,825)	(3,389,945)	(2,822,117)
Gross profit	996,450	1,046,265	1,129,952	940,697
Depreciation	(440,000)	(440,000)	(440,000)	(440,000)
PBIT	556,450	606,265	689,952	500,697

Amounts in Shs'000'

Average Profit (Shs'000') = $\frac{(556,450 + 606,265 + 689,952 + 500,697)}{4 \text{ years}}$

= 588,341

ARR = $\frac{\text{Average profits before interest and tax}}{\text{Initial investment}} \times 100$

= $\frac{588,341,000}{(220,000,000 \times 10)} \times 100 = 26.7\% = 27\%$

Alternatively;
ARR = $\frac{\text{Average profits before interest and tax}}{\text{Average Investment}}$

Average Investment (Shs'000') = $\frac{\{(220,000 \times 10) + (20\% \times 220,000 \times 10)\}}{2}$

=1,320,000

ARR = $\frac{588,341,000}{1,320,000,000} \times 100 = 44.57\% = 44.6\%$

Evaluation:
Since the project's ARR of 27% exceeds the company's target ARR of 25%, the Bus project is viable and should be accepted. The details of this analysis are provided in the

appendix to this report.

Alternatively;
Evaluation:
Since the project's ARR of 44.6% exceeds the company's target ARR of 25%, the Bus project is viable and should be accepted. The details of this analysis are provided in the appendix to this report.

Appendix:

W1 - Revenue in Shs.'000'			
Years	Number of trips per year	Revenue per trip	Revenue
1	10 x 4 x 2 x 365 = 29,200	65 x 2,000 x 1.05 = 136,500	3,985,800.0
2	10 x 4 x 2 x 365 = 29,200	65 x 2,000 x $(1.05)^2$= 143,325	4,185,090.0
3	10 x 4 x 2 x 365 = 29,200	65 x 2,205 x 1.08 = 154,791	4,519,897.2
4	10 x 3 x 2 x 365 = 21,900	65 x 2,381.4 x 1.11 = 171,818	3,762,814.4
W2 - Direct cost in UGX			
Years	Number of trips per year	Cost per trip	Total cost
1	10 x 4 x 2 x 365 = 29,200	65 x 1,500 x 1.05 = 102,375	2,989,350,000
2	10 x 4 x 2 x 365 = 29,200	65 x 1,500 x 1.05^2= 107,494	3,138,824,800
3	10 x 4 x 2 x 365 = 29,200	65 x 1,654 x 1.08 = 116,094	3,389,944,800
4	10 x 3 x 2 x 365 = 21,900	65 x 1,836 x 1.11 = 128,864	2,822,129,046

(i) Assessment of the validity of the (ARR) appraisal technique.
Justification for using ARR appraisal technique:

- ARR is simple to compute and understand by even non- financial managers.
- ARR is linked with accounting measures (ROCE) which mangers/investors are familiar with when it comes to analyzing profitability.
- It considers profits which occur throughout the life of the project.
- This method satisfies the interest of the owners since they are much interested in return on investment.

Arguments against using ARR appraisal technique:

- ARR does not take into account the timing of profits to be able to assign them a present value. Hence ARR fails to take account of the time value of money.

- ARR depends on accounting profits which can be manipulated by accounting transactions such as provisions, depreciation etc.
- ARR can be computed in many ways because it allows a wide open field for determining and selecting profit to use in computations.
- ARR does not provide a definite basis for selecting a hurdle rate. There is a high degree of arbitrariness in defining the cut off/hurdle rate.
- It is based on accounting profits and not cash flows. Accounting profits are subject to a number of different accounting treatments.
- It is a relative measure other than an absolute measure and hence takes no account of the size of the investment.

(ii) Evaluation of financing options

Option 1: Outright purchase of Buses

After tax discount rate = 20% x (1 – 30%)

=14%

The relevant cash flows shall be the tax relief on capital allowances and the proceeds from selling scrapped Buses.

NPV of outright purchase in Shs.'000'

Years	0	1	2	3	4	5
Initial cost	(2,200,000)					
Tax relief			165,000	123,750	92,813	146,438
Scrap proceeds					440,000	
Net cash flows	(2,200,000)		165,000	123,750	532,813	146,438
PVIF at 14%	1.000	0.877	0.769	0.675	0.592	0.519
PVs	(2,200,000)	-	126,885	83,531	315,425	76,001
NPV of outright purchase = (1,598,157)						

W1- Capital allowances in UGX '000'			
Years	NBV	Capital allowance (25%)	Tax relief at 30%
Year 1	2,200,000	550,000	
Year 2	1,650,000	412,500	165,000
Year 3	1,237,500	309,375	123,750
Year 4	928,125	488,125	92,813
Year 5			146,438

Option 2: Acquiring of buses on a lease

Relevant cash flows shall be the minimum lease payments which are assumed to be tax allowable.

NPV of the Leasing option in Shs'000'

Years	0	1	2	3	4
Annual Lease payments	(528,000)	(528,000)	(528,000)	(528,000)	
Tax relief		158,400	158,400	158,400	158,400
Net cash flows	(528,000)	(369,600)	(369,600)	(369,600)	158,400
PVIF at 14%	1.000	0.877	0.769	0.675	0.592
PVs	(528,000)	(324,139)	(284,222)	(249,480)	93,773
NPV of Leasing option = 1,292,069					

Evaluation: The proposed bus project should be financed through a lease since the lease finance option gives a lower net cost of Shs 1.29 billion compared to outright purchase of Shs 1.59 billion.

1(b) (i) Risks and challenges of overseas investments:

- Fluctuations in exchange rates over lengthy time periods are largely unpredictable and these may reduce the domestic currency proceeds in case the domestic currency suffers currency depreciation.
- A foreign investment project may involve levels of operating risk quite different from those of the equivalent project undertaken in the domestic economy.
- Once up and running, the overseas investments are exposed to variations in economic policies of the host countries such as tax changes which may reduce the net cash flows from the investments.
- The host governments may block the repatriation of profits to the home country. This may render a viable overseas investment worth not undertaking.
- Overseas investments are exposed to adverse changes in the political environment of the host countries such political wars which may slow down the growth of such investments.

Measures to mitigate Risks and challenges of overseas investments:

- Using transfer pricing policies that involve charging the overseas subsidiaries high prices for components and other supplies as a way to overcoming restrictions on profit repatriation.
- Charging royalty fees where the overseas investment utilizes any process over which the parent/SWTL claims proprietary rights such as control of a patent or trade mark.
- Negotiating favourable tax regimes such as tax holidays with the host country as a measure to manage risks associated with changes in tax policies.
- Using international hedging techniques such as forward contracts, foreign currency swaps and money market hedges to manage the fluctuations in exchange rates.

- Entering into pre-investment negotiations/contracts with the host country that spell out the respective rights and obligation of the investor (SWTL) and the host country as a measure to manage political risks.
- Issuing equity on the local stock market of the host country to extend ownership of the overseas investment to the locals.

(ii) Challenges associated with absence of an Investment Policy

Policies form a mechanism of checks and balances and ensure that organisations stay on course as they go through their lifecycles. Absence of investment policy at SWTL may result into the following challenges.

- Increase in the potential abuse of company resources including money to finance investments in the way that may not be appropriate or even taking on highly risky investments.
- Absence of an investment policy may result into SWTL failing to focus on its long term objectives as well as failure to cost effectively achieve its mandate.
- Absence of an investment policy may hinder effective financial evaluation of proposed investments as there are no parameters to provide a bench mark for proper assessment such as target payback periods, required rate of return among others.

(c) Drawbacks of investing in long-term securities on Islamic Capital markets.

- There is no standard Sharia model for the Islamic finance market, meaning that documentation is often tailor made for the transaction which leads to higher transaction costs.

- Investing in Islamic financial instruments requires compliance with Sharia laws on top of compliance with the normal financial laws. This creates additional compliance work which can result into additional transaction costs.

- SWTL will not be able to manage its transaction risks of trading in Islamic financial instruments through using various hedging techniques as hedging is prohibited in Islamic finance.

- There is no international consensus on Sharia interpretation, particularly with innovative financial products. Certain financial products may be acceptable in some markets but not in other markets. For example some Murabaha contracts have been criticized because their products are based on prevailing interest rates and not economic conditions.

- Some Islamic products may not be compatible with international financial regulation, for example, a diminishing Musharaka contract may not be an acceptable mortgage instrument in law.

Question 2
2(a) (i) Estimating covariance between two investments;
Calculation of deviations of returns from each investment;
Let two bedroomed houses be X and four bedroomed houses be Y.

Amounts in (Shs'000)

State of economy	Prob.	RX	P.RX	Deviation	P.(Sq. Dev)
Prosperity	0.2	84,000	16,800	21,600	93,312,000
Recovery	0.3	72,000	21,600	9,600	27,648,000
Recession	0.4	48,000	19,200	(14,400)	82,944,000
Slump	0.1	48,000	4,800	(14,400)	20,736,000
Sum of P.RX and P.(Sq. Dev)			62,400		224,640,000

Standard deviation = $\sqrt{224,640,000,000}$
= 473,962

Amounts in (Shs'000)

State of economy	Prob.	RY	P.RY	Deviation	P.(Sq. Dev)
Prosperity	0.2	144,500	28,900	38,420	295,219,280
Recovery	0.3	150,000	45,000	43,920	578,689,920
Recession	0.4	73,400	29,360	(32,680)	427,192,960
Slump	0.1	28,200	2,820	(77,880)	606,529,440
Sum of P.RX and P.(Sq. Dev)			106,080		1,907,631,600

Standard deviation = $\sqrt{1,907,631,600,000}$
= 1,381,170.4

Calculation of covariance in Shs'000'

State of economy	Probability	Dev of RX	Dev of RY	P x (Dev Rx.RY)
Prosperity	0.2	21,600	38,420	165,974,400
Recovery	0.3	9,600	43,920	126,489,600
Recession	0.4	(14,400)	(32,680)	188,236,800
Slump	0.1	(14,400)	(77,880)	112,147,200
				592,848,000

Cov (RX, RY) = Shs. 592,848,000

The covariance of Shs. 592.848 billion suggests a strong element of positive association between the 2-bedroomed and 4-bedroomed house investments.

Advice to management of PIL:
The two projects are affected by the same risk factors and this is evidenced by their positive covariance. What is not clear though is the extent to which the two projects are correlated. I would recommend PIL to reconsider this proposal.
(ii) Estimating degree of correlation between the investments

Correlation coeff = Cov (RX, RY)/sdx.sdy

$= \frac{592,848,000}{(473,962 \times 1,381,170.4)} = 0.91$

Comment: The two projects have a high positive correlation of 0.91 implying that these projects move in the same direction and are largely related with each other.

(b) (i) Risk and return of South Sudan project;

State of economy	Probability (P)	Return (X) (%)	Expected Return (%)	Return Deviation	P.(Sq. Dev)
Growth	0.3	20	6	13	50.7
Recession	0.4	10	4	3	3.6
Stagnation	0.3	-10	-3	-17	86.7
			7		141

Expected return = 7%

Standard deviation = $\sqrt{141}$ = 11.9%

(b) (ii) Effect of proposed investment on PIL's Beta;

Project Beta = $\frac{Cov (R_A, R_M)}{Var (R_M)}$

But market risk = $\frac{10 \times 0.77}{1.5} = 0.051$

Project Beta = $\frac{-0.25 \times 11.9\%}{0.051} = -0.58$

New beta for PIL = (60% X 1.5) + (40% X -0.58) = 0.67

Effect: The proposed investment in South Sudan will lower PIL's Beta by 0.83 from 1.5 to 0.67.

Question 3

3 (a) Funding requirements by PML;

PWL needs additional finance to fund both capital expenditure and working capital. Because revenue is projected to increase by 30%, so is working capital required.

Projected working capital:

		Shs'000'
Total current assets:		
Inventory 840,000 x 1.3	=	1,092,000
Trade & other receivables 165,000 x 1.3	=	214,500
Bank = 220,000 x 1.3	=	286,000
		1,592,500
Less: Trade & other payables 460,000 x 1.3	=	(598,000)
Cumulative working capital needed		994,500

Incremental working capital = 994,500 – (765,000)

= 229,500

Total additional funding required = capital expenditure + incremental working capital
= 540 Million + 229.5 Million
= 769.5 Million
The reported profit margin for year ended 30 June 2019 = 10% x Annual revenue
= 10% x 12,000 tanks x 450,000
= 540 Million

It is assumed that the tax allowable charge relates to depreciation expense, hence depreciation as a proportion of Revenue = 54 million/5,400 million x 100
= 1%
Gross profit margin = 10% + 1% (depreciation is non cash flow)
= 11%
Projection of external financing required – Shs; '000'

Particulars		Amount
Revenue	(12,000 tanks x 450,000) x 1.3	7,020,000
Direct costs	((100% - 11%)) x 7,020M	(6,247,800)
Operating cash flows inflows	11% x 7,020M	772,200
Cash outflow:		
Interest payments	20% x 440 Million	(88,000)
Income tax payment	(Due is at 30 June 2019)	(300,000)
Dividends	80 Million x 1.1	(88,000)
		(476,000)
Net internal finance generated		296,200
Total funding required		769,500
Additional external finance needed		473,300,000

Advice: PML needs to raise additional external funding worth Shs 473.3 Million

3(b) Available sources of finance for PML's expansion:

- Lease Finance: Some new equipment can be leased through a long term capital lease. This is a viable option because tax relief is available on rental payments which lowers the effective cost of using the leased equipment.

- Bank loan or mortgage finance: PML's Non-current assets are of sufficient value (Shs.1.7 billion), so PML should consider raising a mortgage secured on them. This option will enable PML to retain ownership of the assets, and can be arranged quickly.

- Debentures: PML should also consider making a debenture issue as its gearing position measured by debt to total capital of 20.3% seems to be low and the

company is making sufficient profits (Shs.540 Million) in current terms that can cover interest payments.

- Share capital: PML should also consider a rights issue which involves issuing shares to existing shareholders at prices relatively lower than their market value. This is viewed as a good financing option because the associated floatation costs are usually low and the PML is already listed.

3(c) Considerations in selecting between debt and equity capital;

- Availability of security/collateral:-Many lenders may require assets to be pledged as security against loans. Good quality assets may not readily be available making borrowing hard and infeasible.

- Cost of finance: - Debt finance is always cheaper than equity finance because the interest expense on debt is tax allowance which is not the case with dividends. Additionally, arrangement costs for debt finance are lower than equity finance and so PML should have this in mind.
- Current gearing levels:- PML should know that however much debt is cheaper and attractive, its disadvantage is that interest has to be paid. If too much is borrowed, PML may not be able to meet interest and principal payments hence liquidation may set in. PML should be carefully analyze its gearing in relation to its competitors in the same sector.
- Effect on Earnings per Share:- PML should look at this factor critically because issuance of additional shares will dilute PML's EPS if the profits from the new business of water pipes are not immediate. This may even lead to fall in its share prices.

- The current state of equity markets:- In periods of falling share prices, it may not be viable for PML to sell shares as the prices offered will be too low. There is however no information on the state of markets in the economy where PML operates.

Question 4

4(a) Impact of merger on EPS;

EPS for DUL = PAT/Outstanding shares

= 120 Million/600,000 shares = Shs.200

Company	Existing number of shares	EPS	PAT (Shs)
SUL	1,000,000	350	350,000,000
DUL	600,000	200	120,000,000
Total Earnings			470,000,000

Number of shares in a merger = 200/350 x 600,000 shares

= 342,857 shares

Total number of shares after the merger = 1,000,000 + 342,857

=1,342,857 shares

EPS for SUL after merger = 470 Million/1,342,857 shares

= Shs 350

Then, the equivalent EPS for DUL = EPS before x reciprocal of share exchange

= 200 x 350/200 = Shs 350

Impact on EPS:
The EPS of SUL has remained constant at Shs 350 because the number of outstanding shares has increased in the same proportion (34.2%) with the increase in total earnings (34.2%).

The EPS of DUL has increased from Shs 200 to Shs 350. This signifies that the merger has benefited shareholders of DUL and not those of SUL.

4(b) Value of DUL using Earnings Yield method:

EY = EPS/MPS
= 25% = Shs.200/MPS
MPS = Shs.800
Total valuation of DUL = No. of shares x MPS

= 600,000 shares x Shs.800
= Shs. 480 Million

4(c) Validity of mergers as an expansion strategy;

Arguments in favour of mergers:

Speed: - The acquisition of another company is a quicker way of implementing a business plan as the company acquires another organization that is already in operation. This therefore allows a company to achieve a certain optimal level of production much quicker than through organic growth.

Access to overseas markets: - When a company wants to expand its operations in an overseas market, acquiring a local firm may be the only option of breaking into the overseas market.

Lower cost: - An acquisition may be a cheaper way of acquiring productive capacity than through organic growth because the acquisition can be in form share exchange without necessarily requiring cash outflow.

Acquisition of intangible assets: - A firm through an acquisition will acquire not only tangible assets but also intangible assets such as brand recognition, reputation, customer loyalty and intellectual property which are more difficult to achieve with organic growth.

Arguments against mergers:

Exposure to business risk: - Acquisitions normally represent large investments by the bidding company and account for a large proportion of their financial resources. If the acquired company does not perform as initially anticipated, then the effect on the acquiring firm may be adverse.

Exposure to financial risk: - During acquisition process, the acquiring firm may have less than complete information on the target company and there may exist aspects that have been kept hidden from outsiders.

Acquisition premium: - At times the premiums paid are so high and the post-performance of the acquired entities may fail to justify the size of the premiums paid.

Integration problems: - Most acquisitions are beset with problems of integration as each company may have different cultures, history and methods of operation. This management misfit may make the whole acquisition a failure.

Question 5

5 (a) Appropriate cost of capital to be used by RPL;

Step 1: Un-gear the beta to determine project specific risk

Debt : Equity = 25% : 75% = 1 : 3

B_a = B_e x E/(E + D(1-t))
= 1.2 x 3/(3 + 1 (1 – 30%))
= 0.97

Step 2: Re-gear the beta at the current capital structure
B_a = B_e x E/(E + D(1-t))
0.97 = B_e x 3/(3 + 2(1 – 30%))
0.97 = B_e x 0.68
Be = 1.43

Step 3: Determine specific cost of equity and debt
Cost of equity (K_e) = R_f + B_e (R_m – R_f)
= 8% + 1.43 (20% - 8%)
= 25.2%
Cost of debt (K_d) = R_f (1 – t)
= 8% (1 – 30%)
= 5.6%

Step 4: Determine the appropriate cost of capital for the project
Appropriate cost of capital = K_e x E/(E + D) + K_d x D/(E+D)
= 25.2% x 3/(3 + 2) +5.6% x 2/(3 + 2)
=17.4%

5(b) Financial and operating gearing:

Financial gearing is the measure of the extent to which debt is used in the capital structure of an organization and it is always measured as the ratio of interest expense to total earnings before interest and tax or preference share capital plus long-term debt to total long term capital.

Operating gearing is the measure of the extent to which a firm's operating costs are fixed rather than variable as this affects the level of business risk in the organization. This gearing is always measured as the ratio of fixed costs to total costs or change in earnings before interest and tax to change in revenue.
Effects of excessive gearing to an organization:

- Financial distress - High gearing may result into financial distress where a firm may fail to honor obligations to debt conditions or where such conditions are met with difficulties.

- Lenders and other providers of funds may place borrowing covenants to highly geared companies as their fear for financial risks of highly geared firms increases. Such covenants may extend to use of assets, payment of dividends, and disposal of assets among others.
- High gearing may send bad signals about the company's liquidity strengths to suppliers and even employees. This may hinder future credit supplies and may lead to reduced staff motivation.
- Excessive gearing may cause financial slack because the highly geared organizations may fail to seize financially viable opportunities as they arise due to unwillingness of lenders to provide more funding for undertaking such viable investments.
- Excessive gearing may result into tax exhaustion since a highly geared firm may no longer make profits from which interest can be deducted.
- Bankruptcy risks - Excessive gearing may result into liquidation of an entity because such an entity may continuously fail to meet its maturing obligations including paying periodic interest.

5 (c). Interaction between financing and investment decision:
The principal goal of a rational investor is to maximize profits through making appropriate investment and financing decisions which are largely interrelated and may quite often involve a trade-off.

The financing decision is about how investment opportunities are financed whether through debt capital of equity capital. This decision can be extended to cover ways through which business expenses are extinguished.

The type of finance used and the proportion of various financing options will eventually influence the costs of capital of an entity which eventually affects the overall value of the firm.

The investment decision revolves around how best to allocate capital to maximize shareholder value. Investments with the highest possible return will always result into maximum shareholder value but such investments may be long-term and this may necessitate a firm to balance its short term and long-term objectives.

The interaction between the two decisions is on cost of capital which represents the required rate of return by the providers of funds and also represents the discount rate that investors use to assess the viability of proposed investments.

ANSWERS TO TEST PAPER 8
CPA (U) DECEMBER 2020

Solution 1

To: Managing Director of PCL
From: Finance Manager
Date: Exam date
Subject: Financial viability of acquiring modern grading machines

1(a) Financial viability of acquiring the grading machines Project using NPV technique. The proposed investment in modern grading machines is viable as it is projected to result into positive NPV of Shs 32.032 billion. This implies that the project will add value to the wealth of the shareholders.

I therefore recommend that PCL undertakes the proposed investment in modern grading machines. The detailed computations of NPV of the proposed investment is set out below.
NPV Computation;

Amounts in Shs 'million'							
Years	0	1	2	3	4	5	6
Revenue		57,200	75,676	98,242	125,719	159,082	
Direct costs		(48,620)	(61,961)	(77,943)	(97,037)	(86,052)	
Contribution		8,580	13,715	20,299	28,682	73,030	
Fixed costs		(2,000)	(2,960)	(3,997)	(5,117)	(6,326)	
Profit before tax		6,580	10,755	16,302	23,565	66,704	
Tax at 30%			(1,974)	(3,227)	(4,891)	(7,070)	(20,011)
Cash flows after tax		6,580	8,781	13,075	18,674	59,634	
Working capital	(8,400)	(2,040)	(1,795)	(1,939)	(2,094)	16,268	
Initial cost	(7,644)						
Scrap value						382	
Tax relief on tax depn			459	367	294	235	825
Net cash flows	(16,044)	4,540	7,445	11,503	16,874	76,519	(19,186)
PVIFs at 20%	1.000	0.833	0.694	0.579	0.482	0.402	0.335
PVs	(16,044)	3,782	5,167	6,660	8,133	30,761	(6,427)
							NPV = 32,031

Workings:

W1 – Revenue in Shs 'million'

Year	Total revenue	Current revenue	Real cash flow	Cash flows adjusted for inflation
1	=65,000 X 1.8 = 117,000	65,000	52,000	57,200
2	=65,000 x 1.8 x 1.1 = 128,700	65,000	63,700	75,676
3	=65,000 x 1.8 x 1.1^2 = 141,570	65,000	76,570	98,242
4	=65,000 x 1.8 x 1.1^3 = 155,727	65,000	90,727	125,719
5	=65,000 x 1.8 x 1.1^4 = 171,300	65,000	106,300	159,082

W2 – Variable costs in Shs 'million'

Year	Total variable cost	Current variable cost	Real cash flow	Cash flows adjusted for inflation
1	=55,250 x 1.8 = 99,450	55,250	44,200	48,620
2	=55,250 x 1.8 x 1.08 = 107,406	55,250	52,156	61,961
3	=55,250 x 1.8 x 1.08^2 = 115,998.5	55,250	60,749	77,943
4	=55,250 x 1.8 x 1.08^3 = 125,278.4	55,250	70,028	97,037
5	=55,250 x 1.8 x 1.08^3 x 0.9 = 112,751	55,250	57,501	86,052

W3 – Fixed costs in Shs 'million'

Year	Total fixed cost	Current fixed cost	Relevant cash flow
1	12,000	10,000	2,000
2	= 12,000 x 1.08 = 12,960	10,000	2,960
3	= 12,000 x 1.08^2 = 13,997	10,000	3,997
4	= 12,000 x 1.08^3 = 15,116.5	10,000	5,117
5	= 12,000 x 1.08^4= 16,326	10,000	6,326

W4 – Working capital (WC) in Shs 'million'

Year	Cumulative working capital	Incremental working capital
0	=12,000 x 1.7 = 20,400	(8,400)
1	=20,400 x 1.1 = 22,440	(2,040)
2	=22,440 x 1.08 = 24,235.2	(1,795)
3	=22,440 x 1.082 = 26,174	(1,939)
4	=22,440 x 1.083 = 28,268	(2,094)
5	Recoup/ Recovery of WC	16,268

W5 – Initial cost

Invoice price + taxes + incidental costs
= $67,000 + $55,000 + $12,100 = $134,100 per machine

Total cost = $134,100 x 15 = $2,011,500
Convert to Shs = $2,011,500 x 3,800 = Shs 7,643,700,000

W6 – Tax relief on capital allowances;

Years	NBV of machines	Tax depreciation	Tax relief at 30%
1	7,643,700,000	1,528,740,000	
2	6,114,960,000	1,222,992,000	458,622,000
3	4,891,968,000	978,393,600	366,897,600
4	3,913,574,400	782,714,880	293,518,080
5	3,130,859,520	2,748,674,520	234,814,464
6			824,602,356

1(b) financial viability using discounted payback technique;

Years	1	2	3	4	5
Net cash flows	4,540	7,445	11,503	16,874	76,519
PVIFs at 20%	0.833	0.694	0.579	0.482	0.402
PVs	3,782	5,167	6,660	8,133	30,761
Cumulative PVs	3,782	8,949	15,609	23,742	54,503

Adjusted payback period = 1 year + 3,862m/5,167m x 12 months
= 1 year and 9 months

The proposed investment in modern grading machines is viable since it repays the initial outlay in 1 year and 9 months, a period that is less than the standard payback period of 3 years. I therefore recommend that PCL undertakes the proposed investment.

1(c) Sensitivity of the grading machines project to:

(i) Cost of capital;

To determine the sensitivity of the project to its cost of capital, we calculate the IRR of the project.

Amount in Shs (000,000)

Years	0	1	2	3	4	5	6
Net c/flows	(16,044)	4,540	7,445	11,503	16,874	76,519	(19,187)
PVIFs at 80%	1.000	0.556	0.309	0.171	0.095	0.053	0.029
PVs	(16,044)	2,524	2,301	1,967	1,603	4,056	(556)
							NPV = (4,149)

IRR = 20% + [32,031m/ (32,031m + 4,149m)] x (80% - 20%)
= 73.1%

The cost of capital will therefore increase by = $\frac{(73.1\% - 20\%)}{20\%} \times 100$
= 265.5%

(ii) Sensitivity to initial cost;

The initial cost of the project would have to increase by Shs 32,031 m (NPV) for the project to have zero NPV.

$$= \frac{\text{Shs 32,031 m}}{\text{Shs 7,643.7 m}} \times 100 = 419.1\%$$

Conclusion:

The proposed investment in modern grading machines is therefore more sensitive to cost of capital.

1(d) Effects of Money laundering to economies.

Economic distortions – Money laundering impairs the development of the legitimate private sector through the supply of products priced below production costs making it hard for the legitimate sector to compete.

Erosion of the financial sector – The flows of large sums of laundered funds poured in or out of financial institutions might undermine the stability of financial markets and may result into bank failures and financial crises.

Reduction in government revenue – Money laundering also reduces tax revenue as it becomes difficult for government to collect revenue from related transactions which frequently take place in the underground economy.

Socioeconomic costs – Dirty money generated from criminal activities may be used to expand existing criminal operations and finance new ones. Money laundering may also lead to transfer of economic power from the market, government and citizens to criminals.

Money laundering leads to unpredictable changes in money demand as well as great volatility in international capital flows and exchange rates.

Loss of control of economic policy – In emerging economies, the illegal funds flow may dwarf government budgets resulting into loss of control of economic policy by governments.

1(d) (ii) Measures to curb financial crimes.

Enforce compliance with Anti Money Laundering Act, 2013 and its implementing regulations (Anti Money Laundering Regulations, 2015).

Financial institutions and other organizations should set accountability standards, establish policies and controls, and promote transparency by working closely with regulators, reward compliance and exhibit zero tolerance to potential internal and external risks.

Continuous trainings to staff to keep them updated with latest developments in financial systems and emerging risks and equip them with knowledge to how criminals can exploit different avenues.

Organizations should carry out risk assessment of their channels, customer types, products and services to assess their vulnerability to various money laundering practices and set up mechanisms to close any identified gaps.

1(e) The necessity and composition of the Shari'ah Supervisory Board;

The Shari'ah Supervisory Board is an independent body of specialized jurists in Islamic commercial jurisprudence appointed by a company's shareholders.

The Board is composed of religious scholars, lawyers, economists who direct, review and supervise activities of an entity participating in Islamic finance to ensure that such activities comply with Shari'ah rules and principles.

Necessity of Shari'ah Supervisory Board:

To review and certify the permissibility of all contracts, documentation and products.

To issue Shari'ah compliance reports certifying that all transactions undertaken by the entity participating in Islamic banking comply with Shari'ah principles.

To confirm the consistency and compliance level of the practices to Shari'ah laws.

To advise and monitor the manner of disposing the non-Shari'ah compliant earnings in an entity.

Solution 2

To: Directors of PUL
From: Investment Advisor
Date: Exam date
Subject: Acquisition of SUL and PSL

2(a) Viability of acquiring SUL;

The cost of capital will be the WACC since the capital structure is composed of equity and debt and this is calculated as below.

$K_e = R_f + B_e (R_m - R_f)$
$= 9\% + 1.5(20\% - 9\%) = 25.5\%$
$K_d = R_f (1 - t)$
$= 9\% (1 - 30\%) = 6.3\%$
Therefore,
WACC = 25.5% x 70% + 6.3% x 30% = 19.7%

Evaluation using free cash flow method;

Year:	2021	2022	2023	2024	2025 onwards
Cash flow (Shs '000')	417,500	409,200	315,600	475,000	674,000
Perpetuity = 1/WACC					5.076
Value at perpetual C/flow					3,421,224
Net cash flows	417,500	409,200	315,600	475,000	3,421,224
PVIFs at 19.7%	0.835	0.698	0.583	0.487	0.487
PVs	348,613	285,622	183,995	231,325	1,666,136
Sum of present values					2,715,691

Value of equity = total value of SUL – value of Debt
= Shs 2,715,691,000 – 450,000,000
= Shs 2,265,691,000

Evaluation:

The acquisition of SUL will increase the wealth of PUL's shareholders by Shs 465,691,000 (Shs 2,265,736,600 – Shs 1,800,000,000). It is therefore a viable acquisition.

Alternatively;

Evaluation using free cash flow method to equity method;

Amount in Shs (000)

Year	2021	2022	2023	2024	2025 onwards
Cash flow (	417,500	409,200	315,600	475,000	674,000
Less: Interest expense	(73,000)	(73,000)	(73,000)	(73,000)	(73,000)
Add: Interest tax relief	21,900	21,900	21,900	21,900	21,900
Net cash flows	366,400	358,100	264,500	423,900	622,900
Perpetuity = 1/Ke					3.922
Value at perpetual c/flow					2,443,014
Net cash flows	366,400	358,100	264,500	423,900	2,443,014
PVIFs at 25.5%	0.797	0.635	0.506	0.403	0.403
PVs	292,020.8	227,393.5	133,837	170,831.7	984,534.6
					Sum of PVs = 1,808,617.6

Interest expense = (18% x 350m) + (10% x 100m) = Shs 73m

Tax relief on interest expense = 30% x 73m = Shs 21.9m

Evaluation:

The acquisition of SUL will increase the wealth of PUL's shareholders by Shs 8,617,600 (Shs 1,808,617,600 – Shs 1,800,000,000) if the free cash flow to equity method is used. It is therefore a viable acquisition.

2 (b) Maximum value of PSL using the dividend valuation method;

$$\text{Value of PSL} = \frac{D_o (1 + g)}{K_e - g}$$

Ke = 20% + 2.5% = 22.5%

$$= \frac{220m (1 + 5\%)}{22.5\% - 5\%}$$

=Shs 1.32 billion

2(c) Reasons why some mergers and takeovers fail;

Errors in valuing a target company – At times the bidding firm may pay excessively to the extent that the subsequent performance of the acquired firm cannot compensate for the high prices paid.

Market irrationality – Mergers and takeovers occur to take advantage of market irrationality and not necessarily synergies. Therefore the absence of synergies may lead to a failing merger even though the acquired firm was bought cheaply.

Window dressing – At times, companies are not acquired because of the synergies that they may create, but in order to present a better financial picture in the short term.

Poor integration of management – The inflexibility in application of integration plans and poor man management results into an integration misfit thus leading to failure of mergers to meet the objectives of shareholders.

2(d) Techniques to resist takeover by PUL;

Revaluing the companies – The management of SUL and PSL may revalue their companies upwards to the level that is very high and scares away PUL (predator).

Arrange a Management buyout – Management of SUL or PSL can make offers to their employees to buy out the companies so that they own and run the companies themselves. This reduces the attractiveness of the business to the predator (PUL).

Use of poison pill – SUL or PSL can issue large amounts of convertible debentures to existing shareholders to be converted at the date when they

expect to face a takeover from PUL. The technique will increase the number of voting control and force the predator (PUL) to negotiate with the Board of Directors.

Use of white knight technique – SUL and PSL may offer themselves to be taken over by a friendly company to escape the hostile takeover.

SUL and PSL may convince their shareholders not to tender their shares, stating that the offers are not in their best interests.

Solution 3

3(a) (i) Evaluation of portfolios using coefficient of variation;

Gym and swimming pool
Total capital required = 240m + 240m = 480m
Gym = 240m/480m = 50%
Swimming pool = 240m/480m = 50%
Portfolio return = 22% x 50% + 20% x 50% = 21%
Corr coeff = $\frac{\text{Covariance (a,b)}}{S_a \times S_b}$
= 60%/(12% x 9%) = 0.56
Portfolio risk = $(0.5^2 \times 12\%^2 + 0.5^2 \times 9\%^2 + (2 \times 0.5 \times 0.5 \times 0.56 \times 12\% \times 9\%))^{1/2}$
= 9.3%
Gym and Sauna
Total capital required = 240m + 260m = 500m
Gym = 240m/500m = 48%
Sauna & steam bath = 260m/500m = 52%
Portfolio return = 22% x 48% + 17% x 52% = 19.4%
Corr coeff = $\frac{\text{Covariance (a,b)}}{S_a \times S_b}$
= 75%/(12% x 7%) = 0.89
Portfolio risk = $(0.48^2 \times 12\%^2 + 0.52^2 \times 7\%^2 + (2 \times 0.48 \times 0.52 \times 0.89 \times 12\% \times 7\%))^{1/2}$
= 9.15%

Swimming pool and Sauna:
Total capital required = 240m + 260m = 500m
Swimming pool = 240m/500m = 48%
Sauna & steam bath = 260m/500m = 52%
Portfolio return = 20% x 48% + 17% x 52% = 18.44%
Corr coeff = $\frac{\text{Covariance (a,b)}}{S_a \times S_b}$
= 42%/(9% x 7%) = 0.67

Portfolio risk = $(0.48^2 \times 9\%^2 + 0.52^2 \times 7\%^2 + (2 \times 0.48 \times 0.52 \times 0.67 \times 9\% \times 7\%))^{1/2}$

= 7.28%

Coefficient of variation = Risk/Expected return;

Gym and swimming pool = $\frac{9.3\%}{21\%} = 0.44$

Gym and Sauna = $\frac{9.15\%}{19.4\%} = 0.47$

Swimming pool and Sauna = $\frac{7.28\%}{18.44\%} = 0.39$

Recommendation:

CHL should select the portfolio of Swimming pool and Sauna for investment since it has the lowest coefficient of variation of 0.39 implying that an adverse movement in the returns of Swimming pool does not significantly affect the returns of Sauna.

3(a) (ii) Evaluation of portfolios using CAPM with Alpha values;

Portfolio beta values;

Gym and Swimming pool
Portfolio beta = 1.4 x 50% + 0.9 x 50% = 1.15

Gym and Sauna
Portfolio beta = 1.4 x 48% + 0.7 x 52% = 1.036

Swimming pool and Sauna
Portfolio beta = 0.9 x 48% + 0.7 x 52% = 0.796

CAPM return of portfolios = Rf + Ba (Rm – Rf);

Gym and Swimming pool = 9% + 1.15 (20% – 9%) = 21.65%
Gym and Sauna = 9% + 1.036 (20% – 9%) = 20.4%
Swimming pool and Sauna = 9% + 0.796 (20% – 9%) = 17.76%

Portfolio	Expected return	CAPM return	Alpha
Gym and Swimming pool	21.0%	21.65%	-0.65%
Gym and Sauna	19.4%	20.4%	-1%
Swimming pool and Sauna	18.44%	17.76%	0.68%

Recommendation:

CHL should select the portfolio of Swimming pool and Sauna for investment since it has the highest positive Alpha value of 0.68%.

3 (b) Practical applications of Capital Assets Pricing Model;

The Capital Assets Pricing Model explains the relationship between risk and expected return.

The model is used in pricing individual securities and it is built on the underlying assumption that investors must be compensated in two ways i.e. for the time value of money and for the risk undertaken. Therefore, the expected return of a security equals the risk free rate plus the risk premium.

Limitations of Capital Assets Pricing Model;

The model assumes that investors have access to the same information and agree about the risk and expected return of all assets. This may not be true as there exists imperfect markets where there is information asymmetry.

The model assumes that the variance of returns is an adequate measurement of risk. Risk in financial management is not a variance in itself, rather a probability of losing.

CAPM is a single period model implying that it may not be applicable in pricing securities whose duration spans over multi periods.

The model does not adequately explain the variation in stock returns. Empirical studies have shown that low beta stocks may offer higher returns than the model would predict.

The model assumes that there are no taxes and transaction costs. It is very unrealistic to imagine a world without taxes and transaction costs.

The model assumes no preference between markets and assets for individual investors yet investors choose assets solely as a function of their risk-return.

Solution 4

4(a) Evaluation of the current dividend policy at TUL;

Adjusting for profits after tax

Year:	2019	2018	2017	2016	2015
PBT (Shs '000)	1,245,000	1,100,000	907,500	900,000	875,200
Less: Tax at 30%	(373,500)	(330,000)	(272,250)	(270,000)	(262,560)
PAT	871,500	770,000	635,250	630,000	612,640

Determining the number of shares outstanding per year;

Year:	2019	2018	2017	2016	2015
Share capital Shs 'million'	6,075	5,700	5,250	4,875	4,500
Par value	1,500	1,500	1,500	1,500	1,500
No. of shares ('000's)	4,050	3,800	3,500	3,250	3,000

Share par value = Issue price/1.8 = 2,700/1.8 = Shs 1,500

Total Shares for 2019 = Existing + newly issued = 3,800,000 + 250,000
= 4,050,000 shares

Computation of dividend payout and dividend per share;

Year	PAT (Shs 000)	Dividends paid (Shs '000')	Payout ratio	Shares ('000)	Dividend per share
2019	871,500	454,400	52.1%	4,050	112.2
2018	770,000	462,000	60.0%	3,800	121.6
2017	635,250	290,400	45.7%	3,500	83.0
2016	630,000	342,000	54.3%	3,250	105.2
2015	612,640	472,608	77.1%	3,000	157.5

Evaluation;

The analysis above shows that TUL does not have a stable dividend policy as the dividend payout ratio has over the past five (5) years fluctuated between 45.7% and 77.1%.

This implies that the dividends paid to TUL's shareholders is the residual amount left after investing profits for the year in all profitable investments.

Alternative evaluation;

The analysis above shows that TUL does not have a stable dividend policy as the dividend per share has over the past five (5) years fluctuated between Shs 83 and Shs 157.5.

This implies that, the dividends paid to TUL's shareholders is the residual amount left after investing profits for the year in all profitable investments.

Alternative dividend policies;

Constant dividend per share – In this policy, TUL will have to pay a constant sum of money per share held. This policy maintains a relatively stable amount of dividends and shareholders are able to use such dividend income to meet their lining expenses.

Constant dividend payout ratio – TUL can predetermine a percentage of earnings to be paid out as dividends and this should be held constant.

Constant dividend per share plus extra in good years – In this policy, TUL will be required to pay a constant dividend per share but in periods of high earning, the shareholders will earn an extra dividend on top of the usual dividend.

4(b) (i) Factors that influence dividend policies;

Legal considerations – The declaration and payment of dividends should be within the legal requirements which generally seek to preserve the capital base of an entity and to protect creditors against possible withdraw of all funds by owners in form of dividends.

Access to additional funding – Where capital markets are well functioning and easily accessible, a firm may pay cash dividends and then raise additional capital to finance its investments.

Leverage position of a company – Where a company is highly geared, it may be difficult and expensive for it to access funding from financial institutions hence relying on retained earnings which reduces its ability to pay dividends.

Availability of profitable investments – Firms will retain profits if they have profitable projects to finance. If profitable profits do not exist, firms may declare any pay dividends.

Impact of dividends to shareholders – Dividends are personal incomes to shareholders and when paid, may put the investor in a higher income tax bracket. For such a case, payment of dividends becomes undesirable.

Preference of shareholders – Where shareholders prefer current income to future investment, the company should pay dividends rather than retain the earnings.

(ii) Relevance of the Traditional school of thought of dividend payment;

The Traditional school of thought argues that the payment of dividends matters as dividends affect the value of the firm. Scholars of this theory argue that when conditions of uncertainty exist and markets are less than perfect, the investors will perceive current dividends as less risky than distant capital gains or future dividends. This therefore attaches a lower required rate of return to firms that consistently pay dividends.

Relevance of the theory;

The one bird in hand and two in the bush – It is argued that the future is associated with a lot of uncertainty and therefore shareholders are more certain and convinced by the current dividends.

Signaling effect – Payment of dividends signals good information to the shareholders that the firm is performing well while non-payment of dividends conveys a reverse message.

Investors invest precisely to earn dividends as their source of income and failure to receive dividends will be negatively perceived and may abandon shares of such a company in favour of one that pays regular dividends.

Need for diversification – Some investors may want their dividends to invest in other portfolios in order to diversify their portfolio risks.

(iii) Likely impact of the COVID-19 pandemic on TUL;

TUL could default on its loan obligations which could lead to liquidation in severe instances; but even without defaulting, its bankers may increase interest rates which may affect its ability to service its obligations;

The pandemic is likely to force TUL's staff to go for prolonged leave as well as working from home which may reduce staff productivity;

Customers may be hit economically which may reduce demand for TUL's services and consequently lowering its revenue;

Shareholders may face uncertainty in the face of declining profits and if they opt to sell their shares, they could sell at a loss or and this could affect the valuation of the company;

Without diversification, cash flow stability may not be assured in the face of the pandemic. Consequently, this may result into liquidity problems at TUL.

Solution 5

5(a) determining bond issue price;

The annual return on government bonds will be adjusted by the risk premium to determine the rate to use in pricing the 4 year bond issued by HUL as below;

Year:	1	2	3	4
Return on government bonds	8.0%	8.5%	9.5%	11%
Add: Risk premium	2.0%	2.5%	3.5%	3.0%
Discount rate	10%	11%	13%	14%

The issue price of the bond shall be determined by discounting the coupons and principal payments using the above discount rates as below;

Years	Cash flows (Shs '000')	PVIFs	PVs
1	45,000	0.909	40,905
2	45,000	0.812	36,540
3	45,000	0.693	31,185
4	495,000	0.592	293,040
			401,670

Therefore, the appropriate price for the 4 year 10% bond is Shs 401.67 million.

Determining the bond duration;
Bond duration refers to the years it takes to receive a bond's true cost. It is the weighted average of the times until the fixed cash flows are received.
This requires first determining the yield to maturity rate of the bond that will further be used to compute the bond duration as below.

Years	Cash flows (Shs '000)	PVIFs (10%)	PVs
0	(401,670)	1.000	(401,670)
1 - 4	45,000	3.170	142,650
4	450,000	0.683	307,350
			48,330

Years	Cash flows (Shs '000)	PVIFs (15%)	PVs
0	(401,670)	1.000	(401,670)
1 - 4	45,000	2.855	128,475
4	450,000	0.572	257,400
			(15,795)

Yield to maturity = 10% + {48.33m / (48.33m + 15.795m)} x (15% - 10%)
= 13.7%

Bond duration shall be determined from the following;

	Year 1	Year 2	Year 3	Year 4
Cash flows (Shs '000)	45,000	45,000	45,000	495,000
PVIF at 13.7%	0.879	0.774	0.680	0.598
Present values	39,555	34,830	30,600	296,010
Duration weighting	1	2	3	4
Weighted PVs	39,555	69,660	91,800	1,184,040

Bond duration = $\frac{\text{Sum of weighted PVs}}{\text{Sum of PVs}} = \frac{1,385,055,000}{400,995,000}$
=3.45 years

5(b) Modigliani and Miller theory to capital structure.

According to Modigliani and Miller, capital structure is irrelevant. M&M argue that the value of a firm remains constant regardless of the level of debt employed in its capital structure.

Accordingly, as the proportion of debt increases, the cost of equity rises just enough to leave the weighted average cost of capital (WACC) constant and therefore the only factor that can influence the value of a firm is its cash flow generated from operations. With this in mind, firms can only increase the wealth of shareholders by making good investment decisions.

Determinants of an optimum capital structure of an organization;

Taxes: The impact on the firm's overall tax position will need to be considered as well as how tax efficient the alternative sources of finance are.

Financial flexibility: An optimum capital structure is at times influenced by how easy a business can arrange finance on reasonable terms under adverse conditions and this flexibility is normally influenced by the economic environment and the firm's financial position.

Signaling: Some investors may see the issue of debt capital as a sign that the directors are confident enough of the future cash flows of the business to be prepared to commit the company to making regular interest payments to lenders.

Bankruptcy risk: Increasing the level of debt may increase the probability of default as the company is much more exposed to volatility in earnings. Higher levels of debt may also increase the cost of borrowing making repayments of debt more difficult. A firm may therefore choose a level of debt that balances the benefits of debt with costs of bankruptcy.

ANSWERS TO TEST PAPER 9

CPA (U) MARCH 2021

Solution 1

To : Managing Director, PUL
From : Financial Analyst
Date : <Exam Date>
Subject : Financial viability of proposed investments

Please find herein an assessment of the financial viability of proposed investments, usefulness of profitability index, recommendation on project combinations, justification for debt capital, explanation of efficient market hypothesis and ethics.

1(a) Financial viability of proposed investments:

All projects are viable because their respective profitability indices are greater than 1.00. For the Floor Tiles (1.21), Cosmetics (1.05) and Print media (1.14). This implies that the three projects give positive returns per a shilling invested.

Out of the three projects, the first priority should be given to Floor Tiles because its profitability index of 1.21 is higher than that of the Cosmetics (1.05) and Print media (1.14).

1(b) Usefulness of Profitability index
Profitability index (PI) (also known as cost-benefit ratio) is given by NPV of the project divided initial cash outflow plus 1 or as total present value of the cash inflows divided by the initial cash outflow to get the gross PI. PI as an investment appraisal technique is useful in the following ways:

Arguments in favour of PI:

Profitability index takes into consideration the time value of money by discounting cash flows to their present worth using appropriate discount rates.

Profitability index uses cash flow information which is relevant for the overall objective of the firm i.e. wealth maximization.

Profitability index gives a quick view of the investment suitability as projects with Profitability index of greater than 1.00 are deemed viable and hence accepted and those with profitability index of less than 1.00 are deemed non-viable hence rejected.

Assist in choosing projects that fit within the budget - In the real world, we do not have unlimited access to funds and therefore we have to choose projects that fit in our budget. PI is useful when faced with such a scenario in project selection.

Arguments against PI:

Ignoring Sunk Cost - In capital budgeting world sunk costs are not included in estimating the outflows yet these costs might be huge.

Difficulty in determining the required rate of return at which the cash flows are to be discounted might be tough for the finance/investment team.

It may not provide correct decision-making criteria for certain projects - The profitability index tends to score short-term gains better than long-term gains, which may result into selecting wrong projects that cannot generate cash flows in the long term.
It can be difficult to estimate opportunity costs – At times; it may be hard to estimate the alternatives which distorts the results from the profitability index.

1(c) Most viable project combination:
Because the projects are non-divisible, the best combination will be one that gives the highest NPV but based on ranking by profitability index.

Combination 1

Project	Ranking	Initial outlay (Shs 'million')	NPV(Shs 'million')
Floor Tiles	1	24,480	5,193.84
Cosmetics	3	2,550	128.80
		27,030	5,322.64

Combination 2

Project	Ranking	Initial outlay (Shs 'million')	NPV(Shs 'million')
Print Media	2	3,570	500.7
Cosmetics	3	2,550	128.8
		6,120	629.5

Combination 3

Project	Ranking	Initial outlay (Shs 'million')	NPV(Shs 'million')
Floor Tiles	1	24,480	5,193.84

Combination 4

Project	Ranking	Initial outlay (Shs 'million')	NPV(Shs 'million')
Floor tiles	1	24,480	5,193.84
Print media	2	3,570	500.7
		28,050	5,693.84

Combination 5

	Ranking	Initial outlay (Shs 'million')	NPV(Shs 'million')
Floor Tiles	1	24,480	5,193.84
Print Media	2	3,570	500.70
Cosmetics	3	2,550	128.80
		30,600	5,823.34

From the above analysis, whereas combination 5 gives the highest NPV (Shs 5.8 billion) but its initial outlay of Shs 30.6 billion is not within the company's budget because only Shs 27.5 billion has been reserved for investments.

With that in mind, PUL should select the second-best combination measured by NPV and which falls within its cost budget and that is combination 1 (Floor Tiles and Cosmetics) as it generates a positive NPV of Shs 5.3 bn and its initial cost of Shs 27.03 billion is within the company's budget.

1(d) Justification of using debt rather than equity capital:

Cost of finance - Debt capital is usually cheaper compared to equity finance because the interest expense associated with debt finance is tax deductible which results into a tax relief.

Avoids dilution of Earnings per share (EPS) - There is no dilution of EPS when debt finance is used unlike equity capital where large issues of equity could result into dilution of EPS if profits from new investments are not immediate.

Providers of debt finance always require a lower rate of return than equity providers. This is because debt securities present a lower risk than shares for finance providers because they have prior claims on annual income and in liquidation.

Issuing and transaction costs associated with raising and servicing debt are generally less than for ordinary shares.

Debt finance reduces the risk of dilution of control associated with equity finance where a large issue of shares to new investors could alter the voting control of a business.

1(e) Forms of Efficient Market Hypothesis

Efficient markets exist where competition among participants leads to a situation where the actual prices of individual securities reflect the effects of information based on past, present and future events. Efficient Market Hypothesis (EMH) takes the following forms.

Weak market hypothesis - This form asserts that all past market prices and data such as trend of share prices, transaction volumes and security returns are fully reflected in security prices.

Therefore, technical analysis is irrelevant because share prices will follow a random pattern so that at any attempt to study past prices to predict the future will fail since this information is already reflected in the prevailing share price.

Semi strong market hypothesis - This form asserts that all publicly available information such as published financials, economic forecasts among other information is fully reflected in securities prices implying that fundamental analysis is of no use and investors do not gain in studying such reports.

Strong market hypothesis – This form asserts that all information is fully reflected in securities' prices whether past, public or private to the extent that even insider information such as unpublished reports and confidential management decisions are of no use to the investor.

Implications of the forms of efficiency to PUL:

The main implication is that if markets reflect strong form of efficiency, then managers only need to focus on maximizing value from their investments and this information will be reflected in share prices.

Efficient markets also mean no individual can make profits from insider dealing.

Asset prices never deviate from their true price – With market efficiency, investors are able to consistently estimate whether the asset price will move up or down.

Financial managers of entities like PUL cannot "time" issues of stocks and bonds using publicly available information.

A firm like PUL can sell as many shares of stocks or bonds as it desires without depressing prices.

1(f) Package to Chairman Capital Market Authority

The recommendation to the Board to approve a special package to the chairman Capital Market Authority falls short of professional and ethical standards as it is in effect a bribe.

Whereas the listing of PUL may be accelerated, such acts of bribery may come with a number of adverse implication to PUL in future. This is because you have set a trend that is likely to hold even in your future dealings with Capital Markets Authority.

Future approvals for PUL may also call for a bribe on account of the precedent you intend to set.

With this in mind, I recommend that the special package to the Chairman Capital Markets Authority is not submitted to Board for approval. PUL should follow the formal procedure of becoming listed on the Stock Exchange.

Appendix 1

Print Media Project in Shs 'million'

Years	0	1	2	3	4	5
Initial outlay	(3,500)					
Profit after tax		850	977.50	1,124.13	1,292.74	1,163.47
Working capital	(70)	(3.50)	(3.68)	(3.86)	(4.05)	85.09
Net cash flow	(3,570)	846.50	973.82	1,120.27	1,288.69	1,248.56
PVIF at 10%	1.000	0.909	0.826	0.751	0.683	0.621
PVs	(3,570)	769.47	804.38	841.32	880.18	775.36

Profitability index (PI) = Sum of Pvs of inflows
Sum of Pvs of outflows
= 4,070.7m
3,570m
= 1.14

Alternatively,

Profitability index (PI) = NPV/Initial outlay + 1
= 500.71m/3,570m + 1 = 1.14

Floor Tiles Project in Shs 'million'

Years	0	1	2	3	4	5
Initial outlay	(24,000)					
Profit after tax		6,200	7,130	8,199.50	9,429.43	8,486.48
Working capital	(480)	(24)	(25.20)	(26.46)	(27.74)	583.40
Net cash flow	(24,480)	6,176	7,104.80	8,173.04	9,401.69	9,069.88
PVIF at 10%	1.000	0.909	0.826	0.751	0.683	0.621
PVs	(24,480)	5,613.98	5,868.56	6,137.95	6,421.35	5,632

Profitability index (PI) = 29,673.84m
24,480m
= 1.21

Alternatively,
Profitability index (PI) = NPV/Initial outlay + 1
= 29,673.84m/24,480m + 1 = 1.21 Shs 'million'

Cosmetics Project in Shs 'million'

Years	0	1	2	3	4
Initial outlay	(2,500)				
Profit after tax		680	782	899.30	1,034.20
Working capital	(50)	(3)	(2.63)	(2.76)	57.88
Net cash flow	(2,550)	678	779.38	896.55	1,092.08
PVIF at 10%	1.000	0.909	0.826	0.751	0.683
PVs	(2,550)	615.85	643.76	673.31	745.89

Profitability index (PI) = 2,678.8m
2,550m
= 1.05

Alternatively,
Profitability index (PI) = NPV/Initial outlay + 1
= 128.81m/2,550m + 1 = 1.05

Print Media Project in Shs 'million'

Years	0	1	2	3	4	5
Cumm. Working capital	70	73.50	77.18	81.03	85.09	
Incremental cash flow	70	3.50	3.68	3.86	4.05	
Recoup						(85.09)

Floor Tiles Project in Shs 'million'

Years	0	1	2	3	4	5
Cumm. Working capital	480	504	529.20	555.66	583.44	
Incremental cash flow	480	24.00	25.20	26.46	27.78	
Recoup						(583.44)

Cosmetics Project in Shs 'million'

Years	0	1	2	3	4
Cumm. Working capital	50	52.5	55.13	57.88	
Incremental cash flow	50	2.50	2.63	2.76	
Recoup					(57.88)

Solution 2

2(a). Viable investment portfolio:

Computation of expected return and standard deviations for individual investments;

Electronics project

State of economy	P(x)	x (%)	xP(x)	$(x - \overline{X})$	$P(x)*(x-\overline{X})^2$
Depression	0.1	-5.0	-0.5	-23.5	55.225
Recovery	0.4	10.0	4.0	-8.5	28.9
Boom	0.5	30.0	15.0	11.5	66.125
			$\overline{X}$ = 18.5		150.25

Standard deviation = $\sqrt{150.25}$ = 12.26

Garments project

State of economy	P(x)	x (%)	xP(x)	$(x - \overline{X})$	$P(x)*(x-\overline{X})^2$
Depression	0.1	8.0	0.8	-8.3	6.9
Recovery	0.4	20.0	8.0	3.7	5.5
Boom	0.5	15.0	7.5	-1.3	0.8
			$\overline{X}$ =16.3		13.2

Standard deviation = $\sqrt{13.2}$ = 3.63

Stationary project

State of economy	P(x)	x (%)	xP(x)	(x - $\overline{X}$)	P(x)*(x- $\overline{X}$)^2
Depression	0.1	-10.0	-1.0	-26.2	68.6
Recovery	0.4	18.0	7.2	1.8	1.3
Boom	0.5	20.0	10.0	3.8	7.2
			$\overline{X}$ =16.2		77.2

Standard deviation = $\sqrt{77.2}$ = 8.8

Form portfolios and calculate of covariance and correlation coefficients

Electronics and Garments

State of economy	x - $\overline{X} = \overline{X_e}$ Electronics	x - $\overline{X} = \overline{X_g}$ Garments	P(x)	P(x) * $\overline{X_e}$ * $\overline{X_g}$
Depression	-23.5	-8.3	0.1	19.51
Recovery	-8.5	3.7	0.4	-12.58
Boom	11.5	-1.3	0.5	-7.48
				-0.55

Cov (Re, Rg) = -0.55

Correlation coeff = -0.55/(12.26 x 3.63) = -0.01

Electronics and Stationary

State of economy	x - $\overline{X} = \overline{X_e}$ Electronics	x - $\overline{X} = \overline{X_s}$ Stationary	P(x)	P(x)* $\overline{X_e}$ * $\overline{X_s}$
Depression	-23.5	-26.2	0.1	61.57
Recovery	-8.5	1.8	0.4	-6.12
Boom	11.5	3.8	0.5	21.85
				77.3

Cov (Re, Rs) = 77.3

Correlation coeff = 77.3/(12.26 x 8.8) = 0.72

Garments and Stationary

State of economy	x - $\overline{X} = \overline{X_g}$ Garments	x - $\overline{X} = \overline{X_s}$ Stationary	P(x)	P(x)* $\overline{X_g}$ * $\overline{X_s}$
Depression	-8.3	-26.2	0.1	21.75
Recovery	3.7	1.8	0.4	2.66
Boom	-1.3	3.8	0.5	-2.47
				21.94

Cov (Rg, Rs) = 21.94

Correlation coeff = 21.94/(3.63 x 8.8) = 0.68

Determining portfolio return and risk;

Electronics and Garments
Expected return = (50% x 18.5%) + (50% x 16.3%) = 17.4%
Risk = $\sqrt{}$((0.5^2 x 12.26^2) + (0.5^2 x 3.63^2) + (2 x 0.5 x 0.5 x -0.01 x 12.26 x 3.63))
= 6.4%
Electronics and Stationary
Expected return = (50% x 18.5%) + (50% x 16.2%) = 17.4%
Risk = $\sqrt{}$((0.5^2 x 12.26^2) + (0.5^2 x 8.8^2) + (2 x 0.5 x 0.5 x 0.72 x 12.26 x 8.8))
= 9.8%
Garments and Stationary
Expected return = (50% x 16.3%) + (50% x 16.2%) = 16.25%
Risk = $\sqrt{}$((0.5^2 x 3.63^2) + (0.5^2 x 8.8^2) + (2 x 0.5 x 0.5 x 0.68 x 3.63 x 8.8))
= 5.8%

Evaluation: From the above analysis, TUL should consider undertaking the Electronics and Garments project whose return is 17.4% and risk of 6.4% if TUL is a risk taker. If TUL was risk averse, it would select the portfolio of Garments and Stationery with a return of 16.2% and risk of 5.8%.

2(b). Use of Mean variance rule and correlation in portfolio selection

The mean variance rule states that the higher the return the higher the risk and vice versa. The implication is that portfolios with higher returns always have higher risks and those with low returns always have low returns.

A rational investor will look for either income or capital gains or both in any investment. In determining which portfolio to select, an investor will be guided by his risk preference and need for current income.

Risk takers will always select portfolios with higher returns no matter their risk levels and the reverse is true to risk averse investors.

Correlation will help an investor to select a portfolio whose assets/securities do not move in the same direction with each other. Therefore a rational investor will always select portfolios with a negative correlation because a loss in one asset can be compensated by profits from another asset.

2(c). Relevance of Arbitrage Pricing;

Arbitrage pricing theory is an extension of the Capital Assets Pricing Model to include more than one factor used to explain the returns on securities.

Arbitrage pricing theory is based on assumption that the return on a share depends partly on macroeconomic factors and partly on events specific to the company. The model specifies that the return on market portfolios do not depend on a single factor but on multiple macro-economic factors.

Arbitrage pricing theory avoids the CAPM's problem of having to identify the market portfolio instead an investor simply needs to identify macroeconomic variables.

It allows for unanticipated changes – the inclusion of unanticipated change in arbitrage pricing makes it easier for investors to identify assets which have the strongest potential for failure based on the information that is provided by the opportunity itself.

Arbitrage pricing allows investors to find arbitrage opportunities – with arbitrage pricing, investors are able to find securities in the market that are misplaced in some way, hence helping them to build portfolios that generate returns that are better than what the indexes are offering.

Solution 3

(a) (i) Impact of Netting to GUL Group;

	Paying subsidiary Shs'000'					
Receiving subsidiary	Ugada	Kenya	Tanzania	Total receipts	Total Payments	Net receipts/ (payments)
Uganda	-	40,000	35,000	75,000.0	766,750.7	(691,750.7)
Kenya	750,750.7	-	600,600.6	1,351,351.3	107,200.0	1,244,151.3
Tanzania	16,000	67,200	-	83,200.0	635,600.6	(552,400.6)

This policy of netting will minimize transaction costs for GUL Group and should prevent the need for foreign currency hedging.

The transactions required are reduce to two that is the Uganda subsidiary and Tanzania subsidiary are required to pay Shs 691.75 million and Shs 552.4 million to the Kenyan subsidiary.

(a) (ii) Reasons for fluctuations in foreign exchange rates;

Inflation:- Countries that experience high rates of inflation also face fluctuations in foreign exchange rates as investors may opt to buy more foreign currency to store their wealth other than saving in the domestic currency.

Speculation:- At times fluctuations occur due to speculation of the investors about the likely currency appreciation or depreciation in the near future.

Interest rates:- Where a country offers high rates on fixed deposits, investors will demand more of that country's currency to be able to invest in term deposits and earn higher returns which in turn increases the demand for that country's currency hence leading to exchange rate fluctuations.

Forces of demand and supply:- Currencies are also traded like ordinary goods. Importers may buy say dollars to facilitate their importation of goods say from China, so the increase in demand and supply of currencies lead to exchange rate fluctuations.

Political stability:- Economies with stable political environment tend to experience stable foreign exchange rates compared to economies characterized by wars and internal conflicts.

(a) (iii) Internal hedging techniques;

Invoicing in home currency:- GUL can arrange to invoice its overseas customers in its own domestic currency or negotiate with its overseas suppliers to be invoiced in its home currency. This technique will help GUL to transfer the transaction risk to its customers and suppliers of GUL.

Matching receipts and payments:- GUL can use this technique if it expects to make payments and have receipts in the same foreign currency. The receipts and payments are then offset against each other in that currency. Any difference between payables and receivables can be covered by a forward exchange contract.

Leading and lagging:- Leading involves accelerating payments to avoid potential additional costs due to currency rate movements while lagging is the practice of delaying payments if currency movements are expected to make the later payment cheaper. GUL may opt to employ this technique to take advantage of forex rate movements.

(b) Futures hedge;

GUL has been given one contract hence it is the best contract available. Because the futures contract is in USD, GUL needs to buy futures.

Number of contracts = $\frac{\$25,000}{\$6,250}$ = 4 contracts

Opening futures price	= 3,700
Closing futures price	= 3,800
Movement	100

Futures profit = 100 x $ 6,250 x 4 contracts = Shs 2.5 million

Net outcome:

Spot market payment = $ 25,000 x 3,780	= 94.5 million
Less: Futures profit	= (2.5 million)
	92 million

The risk has been materialized as in the end GUL needs to pay Shs 3,780 to buy each USD than Shs 3,700. Buying the USD futures has mitigated this loss since you sell them at a profit of Shs 2.5 million.

Solution 4

a) Maximum price for acquisition of WYL:

Using P/E Ratio.

P/E Ratio = MPS/EPS

EPS = PAT/Outstanding ordinary shares

= 18,970,000,000/40,000,000 shares

= Shs 474.25

P/E Ratio of WYL = 50% x 6 times = 3 times

From P/E Ratio = MPS/EPS

3 times = MPS/474.25

MPS = 1,422.75

Maximum price = 1,422.75 x 40,000,000 shares = 56.91 billion

Using discounted cash flow method;

Cost of capital = RF + Ba (Rm – Rf)

= 8% + 2.5 (12% - 8%)

=18%

Acquisition of WYL Shs 'million'

	1	2	3	4	5
Profit before tax	32,000	35,200	38,720	42,592	45,999.4
Tax at 30%	(9,600.0)	(10,560.0)	(11,616.0)	(12,777.6)	(13,799.8)
After tax cash flows	22,400.0	24,640.0	27,104.0	29,814.4	32,199.6
PVIF at 18%	0.847	0.718	0.609	0.516	0.437
Present values	18,972.800	17,691.520	16,506.336	15,384.230	14,071.204
					82,626.09

The Maximum price payable by SUL to acquire WYL shall be Shs 82.63 billion

(b) Reasons why mergers/acquisitions fail;

Errors in valuing a target firm:- Managers of the bidding firm may advise their company to bid too much as they may fall short of valuation expertise. As a result, the merger fails as the subsequent performance may fail to compensate for the high price paid.

Window dressing:- At times, companies are not acquired because of the synergies that they may create but in order to present a better financial picture in the short term.

Failure of integration of management:- At times the acquirer becomes over rigid to the adherence to prepared integration plans yet the integration plan may have been based on incomplete information and may need post-merger adaptation to the new perception of reality.

At times mergers occur to take advantage of market irrationality and not because of the synergies it may create. This lack of synergies in the end may lead to a failing merger even though the acquired firm was bought cheaply.

Poor man management:- Lack of communication of goals and future prospects of employees, and failure to recognize and deal with their uncertainties and anxieties can lead to their unwillingness to adapt to new procedures hence failure of mergers.

(c) Concept of synergy and sources of financial synergies;

Synergies are gains in revenue or cost savings resulting from takeovers or mergers and not the mere size of the firm. The underlying principle in synergies is that the combine entity will have a value greater than the sum of its parts.

Sources of financial synergies:

Tax benefits:- The tax paid by two firms combined together may be lower than the taxes paid by them as individual firms. This is on account that one firm may have carried forward accumulated losses that result into tax savings.

Debt capacity:- By combining two companies each of which has little or no capacity to carry debt, it is possible to create a firm that may have the capacity to borrow money and create value.

Cash slack:- The source of synergy here is when a firm with significant excess cash acquires a firm with great projects but faced with insufficient capital, the combination can create value.

Solution 5

5(a) Value of BEL using M & M Theory;

Value of BEL when dividends are not paid;

Price per share at end of Year 1:
Market price (P_0) = 10,000 x 1.125 = 11,250

From $P_0 = P_1/ (1 + K_e)$
$11,250 = P_1/ (1 + 20\%)$
$P_1 = 13,500$

Amount required to be raised from issuing shares:
= 40 million – 25 million
= 15 million

Number of additional shares to be issued:
= required funds/share price = 15 million/13,500
= 1,111 shares

$$\text{Value of BEL} = \frac{\text{(No. of shares x share price)} - \text{cost of investments} + \text{Net profit}}{(1 + K_e)}$$

$$= \frac{((20{,}000 + 1{,}111) \times 13{,}500) - 40 \text{ million} + 25 \text{ million}}{(1 + 20\%)}$$

= Shs 225 million

Value of BEL when dividends are paid;

$P_0 = 1/ (1 + K_e) \times (D_1 + P_1)$

$11{,}250 = 1/ (1.2) X (500 + P_1)$

$P_1 = 13{,}000$

Amount required to be raised from issuing shares:

= 40 million – (25 million - 20,000 x 500)

= 25 million

Number of additional shares to be issued:

= required funds/share price = 25 million/13,000

= 1,923 shares

$$\text{Value of BEL} = \frac{((20{,}000 + 1{,}923) \times 13{,}000) - 40 \text{ million} + 25 \text{ million}}{(1 + 20\%)}$$

= Shs 225 million

Justification:

From the above analysis, the value of BEL when no dividends are paid (Shs 225 million) is the same as it value when dividends are paid. This strengthens the CFO's view that the distribution of dividends will not affect the value of BEL.

(b) Validity of traditional view to Dividend Policy:

The traditional view to Dividend Policy asserts that paying dividend is very important to shareholders and this is justified by the following arguments:

Dividend payment convey good information to investors about the future prospects of a company. This may result into stock appreciation and hence increase the value of a firm.

Shareholders prefer to receive dividends today than wait for the future. This is so because future dividends are less certain and may be valued less.

Investors invest precisely to earn dividends as their source of income and for such investors, dividend payment patterns would influence their rating of the firm. Should a company fail to pay dividends, such investors may even abandon shares of such a company in favour of one that pays regular dividends.

Existence of transaction costs:- These costs include floatation costs, underwriters' costs etc. and such costs reduce the value of shares on the market. Investors therefore prefer dividends on which they do not incur such costs to future capital gains to be realized by sale of shares on market.

Need for diversification:- Investors may want to diversify their portfolio hence prefer dividends to provide them with income to secure

(c) Scrip dividends and their justification:
Scrip dividends are dividend payments made in form of additional shares rather than a cash payout.

Justification for scrip dividends:

Scrip dividends preserve liquidity which may be important at times of cash shortage and or during times of high borrowing costs.

For shareholders wishing to expand their holdings, the scrip is a cheap way into the company as it avoids dealing fees and other share acquisition costs.

Scrip dividends give shareholders a chance to acquire shares thereby making shares more attractive to a wider clientele.

Scrip dividends attract less tax liability in form of capital gains tax than cash dividends which are associated with larger tax liabilities because they are taxed as personal income.

ANSWERS TO TEST PAPER 10
CPA (U) OCTOBER 2021

Solution 1

To: Management of CML
From: Finance Manager
Date: [*Exam date*]
Subject: Investment in modern milling machines

(a) Viability of investment in modern milling machines

I have evaluated the proposed investment in modern milling machines and found it viable since its internal rate of return (IRR) at 200% is significantly higher than the standard rate of return of 25%. This implies that the proposed investment will generate significant returns that are more than enough to finance the cost of finance used to acquire the machines. Therefore, the proposed investment in modern milling machines should be accepted.

Refer to *Appendix A* below for detailed analysis.

Appendix A:

Computation of NPV in Shs '000,000' at 25% rate of return

Years	0	1	2	3	4	5
Revenue (w1)		31,500	43,004	38,199	33,132	28,094
Variable costs (w2)		-18,900	-25,800	-22,924	- 19,878	- 16,853
Contribution		12,600	17,204	15,275	13,254	11,241
Fixed costs (w3)		-3,200	-3,760	-4,348	- 5,089	- 5,874
Profit before tax		9,400	13,444	10,927	8,165	5,367
Tax at 30%		-2,820	-4,033	-3,278	-2,450	-1,610
Profit after tax		6,580	9,411	7,649	5,715	3,757
Initial outlay	-1,600					
Working capital (w4)	-2,700	- 135	- 142	- 149	- 188	3,314
Scrap proceeds						320
Tax relief on capital allowances (w5)		96	77	61	49	101
Net cash flows	- 4,300	6,541	9,346	7,561	5,576	7,492
PVIFs at 25%	1.000	0.800	0.64	0.512	0.409	0.328
PVs	- 4,300	5,233	5,981	3,871	2,281	2,457

At r= 25%, NPV = 15,523

Computation of NPV in Shs'000,000' at 200% rate of return

Years	0	1	2	3	4	5
Net cash flows	-4,300	6,541	9,346	7,561	5,576	7,492
PVIFs at 200%	1.000	0.333	0.111	0.037	0.012	0.004
PVs	-4,300	2,178	1,037	280	67	30
NPV						= (708)

IRR = LR + {P/(P+N) x HR – LR}

= 25% + 15,523m / (15,523m + 708m) x (200% - 25%) = 192.4%

Workings;

W1 – Revenue

Year	**1**	**2**	**3**	**4**	**5**
Output:					
Maize flour in kg (000)	8,000	10,000	9,000	5,600	5,000
Wheat flour in kg (000)	6,000	8,000	6,500	6,200	4,700
Price for Maize flour	1,575	1,654	1,736	1,841	1,951
Price for Baking flour	3,150	3,308	3,473	3,681	3,902
Revenue - Maize flour (Shs '000)	12,600,000	16,540,000	15,624,000	10,309,600	9,755,000
Revenue - Wheat flour (Shs '000)	18,900,000	26,464,000	22,574,500	22,822,200	18,339,400
Total revenue	31,500,000	43,004,000	38,198,500	33,131,800	28,094,400

W2 – Variable costs

Years	1	2	3	4	5
Output:					
Maize flour in kg (000)	8,000	10,000	9,000	5,600	5,000
Wheat flour in kg (000)	6,000	8,000	6,500	6,200	4,700
Unit var. cost for Maize flour	945	992	1,042	1,104	1,170
Unit var. cost for Wheat flour	1,890	1,985	2,084	2,209	2,341
TVC - Maize flour (Shs'000)	7,560,000	9,920,000	9,378,000	6,182,400	5,850,000
TVC - Wheat flour (Shs'000)	11,340,000	15,880,000	13,546,000	13,695,800	11,002,700
Total variable cost	18,900,000	25,800,000	22,924,000	19,878,200	16,852,700

W3 – Estimation of incremental fixed costs:

Years	Shs'000'	Shs'000'	Incremental F.C (Shs'000)
1	8,000,000 x 1.4	11,200,000	3,200,000
2	11,200,000 x 1.05	11,760,000	3,760,000
3	11,760,000 x 1.05	12,348,000	4,348,000
4	12,348,000 x 1.06	13,088,880	5,088,880
5	13,088,880 x 1.06	13,874,213	5,874,213

W4 – Estimation of incremental working capital in Shs'000'

Years	Cumulative Working capital	Working capital change
0	2,700,000	2,700,000
1	2,700,000 x 1.05 = 2,835,000	135,000
2	2,835,000 x 1.05 = 2,976,750	141,750
3	2,976,750 x 1.05 = 3,125,587.5	148,838
4	3,125,587.5 x 1.06 = 3,313,122.7	187,535

W5 – Capital allowances and tax relief thereon in Shs'000'

Year	Capital allowances	NBV	Tax relief
1	1,600,000 x 20% = 320,000	1,280,000	96,000
2	1,280,000 x 20% = 256,000	1,024,000	76,800
3	1,024,000 x 20% = 204,800	819,200	61,440
4	819,200 x 20% = 163,840	655,360	49,152
5	655,360 x 20% = 131,072	524,288	39,322
5	Balancing allowance (w6)		61,286

W6 – Balancing allowance in Shs'000';

Disposal proceeds 20% x 1,600,000 = 320,000
Less: NBV of machines in Year 5 = 524,288
Balancing allowance 204,288
Tax relief = 30% x 204,288 = 61,286.4

Validity of using IRR technique in project appraisal;

We can assess the validity of using the IRR technique by assessing the arguments for and against the technique, and they include the following:

Arguments for the IRR technique;

- IRR technique takes into consideration the time value of money when used in evaluating projects;
- IRR techniques uses cash flow information rather than accounting information that is prone to manipulation.
- IRR uses cost of capital to assess the viability proposed investments. Once the IRR is calculated, investments are simply selected where the IRR exceeds the estimated cost of capital.

Arguments against the IRR;

- IRR technique cannot be used to distinguish between mutually exclusive projects because it merely indicates whether or not a project has a positive NPV but does not indicate the magnitude of NPV;
- IRR does not account for the project size when comparing projects instead; cash flows are simply compared to the amount of capital outlay generating those cash flows. This can be troublesome when two projects require a significantly different amount of capital outlay, but the smaller project returns a higher IRR.
- IRR makes an implicit assumption that cash flows can be reinvested at the same rate as the IRR. This assumption is not practical as the IRR is sometimes a very high rate and

opportunities that yield such a return may generally not be available or significantly limited.

- IRR is very hard for non-financial managers to appreciate as it does not show the viability of investments in absolute terms;
- IRR technique is tiresome and time consuming as it involves wide complex calculations;

(b) Project evaluation with Certainty equivalent factors in Shs '000,000'

Year	0	1	2	3	4	5
Net cash flows	- 4,300	6,541	9,346	7,561	5,576	7,492
Certainty equivalent factors	1.000	0.90	0.80	0.75	0.70	0.65
Free cash flows	- 4,300	5,887	7,477	5,671	3,903	4,870
PVIFs at 25%	1.000	0.800	0.640	0.512	0.409	0.328
PVs	- 4,300	4,709.6	4,785.3	2,903.6	1,596.3	1,597.4
NPV						= 11,292.2

Evaluation;

The inclusion of certainty equivalent factors in project evaluation will still result into a positive NPV of Shs. 11,292.2m. The proposed investment in modern milling machines will therefore remain viable.

(c). Recommendation of appropriate replacement cycles of delivery vans**:**

Total cost of new delivery vans = Shs 60 million x 4 = Shs 240 million

Replacement period	Particulars	Cash flow	PVIFs at 25%	NPV
		Shs'000'		Shs'000
Replace in Year 0	Cost of new delivery vans	- 240,000		
	Disposal proceeds	60,000		
		- 180,000	1.000	-180,000
Replace in Year 1	Cost of new delivery vans	- 240,000	0.800	-192,000
	Disposal proceeds	48,000	0.800	38,400
	Year 1 Maintenance cost	- 14,500	0.800	- 11,600
				-165,200
Replace in Year 2	Cost of new delivery vans	- 240,000	0.640	-153,600
	Disposal proceeds	40,000	0.640	25,600
	Year 2 Maintenance cost	- 15,700	0.640	- 10,048
	Year 1 Maintenance cost	- 14,500	0.800	- 11,600
				-149,648

Replace in Year 3	Cost of new delivery vans	- 240,000	0.512	-122,880
	Disposal proceeds	7,000	0.512	3,584
	Year 3 Maintenance cost	- 17,200	0.512	- 8,806
	Year 2 Maintenance cost	- 15,700	0.640	- 10,048
	Year 1 Maintenance cost	- 14,500	0.800	- 11,600
				-149,750

Evaluation;

CML should replace its delivery vans in year 2 as this period gives the lowest Net present value cost (Shs 149,648,000) of the replacement decision.

(d) Effects of conflict of interest and insider trading to CML;

- Insider trading creates a leverage to one party over the other hence rendering transactions not to be at arm's length;
- The existence of conflict of interest is likely to impair CML's objectivity in assessing the bidders which distorts the entire procurement process and may lead to low value for money procurements.
- Trading on insider information is illegal and it puts other potential bidders who are not yet aware of a certain development at a disadvantage hence CML may not be in position to award bids to the most viable bidder;
- Trading on insider information undermines confidence in the procurement process of the organization and potential bidders may be hesitant to participate in the future procurements.

(e) Requirements for growth of Islamic capital markets in Uganda:

- Strengthen the legal and regulatory issues – Amend the Financial Institutions Act, 2004 to provide for Islamic banking on top of the newly issued Islamic banking regulations, 2018;
- Refine the tax regime in Uganda to provide a level ground between Islamic finance and conventional banking;
- Accelerate financial inclusion and awareness campaigns to disseminate Islamic banking knowledge to a wide number of stakeholders;
- Investors should have access to viable remedies including arbitration and mediation that can result in the payment of adequate compensation or the restitution of relevant property, such being compatible with the shari'ah.
- Enforce issuance or supply of sovereign sukuk denominated both in domestic and in foreign currency.
- Establish and empower support structures like shari'ah boards and Islamic professional structures of lawyers, auditors, accountants etc.;

Solution 2

(a) Assessing the appropriateness of hedging techniques;

(i) Forward contract;

BWL must buy US Dollars (USD) in order to pay the Dubai supplier. The exchange rate in a 3 months forward is Shs 3,670.

Therefore, the cost of the USD 150,000 to BWL in 3 months' time is;

USD 150,000 x 3,670 = Shs 550,500,000

(ii) Money Market;

BWL will have to borrow in UShs and deposit in USD at 22% and 9% per annum respectively;

Therefore, the money market hedge will be;

Step 1 – Pay off with US Dollar deposit (USD 150,000)

Step 2 – Pay US Dollar invoice from Dubai supplier USD 150,000

Step 3 – Put money into USD account at 9% x 3/12 = 2.25%

$$= \frac{\text{USD } 150{,}000}{1.0225} = \text{USD } 146{,}699.3$$

Step 4 – Withdraw/Borrow funds from UShs account at 22% x 3/12 = 5.5%

= USD 146,699.3 x 3,650 = Shs 535,452,445

Add: Interest = Shs 535,452,445 x 5.5% = Shs 29,449,884

Shs 564,902,329

Alternatively;
Cost of money market hedge = $146,699.3 x 3,650 x 1.055= Shs 564,902,329

(iii) Lead payment

Cost of paying USD 150,000 now = USD 150,000 x 3,650 = Shs 547,500,000

Add: Lost interest (Shs 547,500,000 x 12% x 3/12) = Shs 16,425,000

Shs 563,925,000

Alternatively;
Cost of lead payment = USD 150,000 x 3,650 x 1.03 = Shs 563,925,000

Evaluation;

The cheapest hedging option available to BWL is the forward exchange contract (Shs. 550,500,000), hence BWL should use this technique to hedge against the anticipated foreign exchange risk.

(b) Impact of multilateral netting on BWL Group in Shs'000'

Receiving subsidiary	Paying subsidiary			Total receipts (Add across)	Total payments (Add downwards)	Net receipts / (payments)
	Uganda	Kenya	Tanzania			
Uganda	-	185,000	120,000	305,000	(639,000)	(334,000)
Kenya	408,000	-	340,000	748,000	(449,000)	299,000
Tanzania	231,000	264,000	-	495,000	(460,000)	35,000

Evaluation;

The technique (multilateral netting) reduces the settlement transactions required to only two (2) transactions that is the Ugandan subsidiary pays Shs. 299 million and Shs 35 million to the Kenyan and Tanzanian subsidiaries respectively.

(c) Effects of foreign exchange rate fluctuations to organizations;

- Forex fluctuations impact on the amount of borrowed money (payables) to be repaid or received (receivables) together with their corresponding interest and this distorts/affects the cash flows of organisations;
- Forex fluctuations affect selling prices and gross margins for organisations that deal in exports and this ultimately affect the corresponding net profit;
- Forex fluctuations erode away market confidence – Organisations may starting perceiving a certain currency as a weaker currency and this may reduce the level of investments denominated in that currency;
- Fluctuations in foreign exchange rates affects the levels of imports as an adverse movement in forex rates renders raw material imports more expensive. This eventually increases the cost of production hence reducing organizational profitability;
- Forex fluctuations increase speculation in the forex market and this comes with associated problems including currency hoarding.

Solution 3

(a) Estimation of the discount rate for base-case NPV**.**

Estimation of the discount rate:

The discount rate will be the cost of equity in ungeared company (K_{eu});

From the formula

$\beta a = \beta e \times E/(E + D(1-t)) + \beta d \times D(1-t)/(E + D(1-t))$

$\Rightarrow \beta a = 1.25 \times 2/(2+1(1-30\%)) = 0.93$

Therefore,

Keu = Rf + Ba (Rm – Rf) = 8% + 0.93 (20% - 8%) = 19.2%

The discount rate to be used in the evaluation of the expansion project can be estimated as 19%.

Considerations to be made in arriving at the financing options:

The Board should consider the following factors in deciding whether to use debt or equity or a combination:

Cost: The Board needs to consider the relative cost of each source; debt is sometimes cheaper as the cost is direct and can be secured.

Availability: The board needs to consider how quickly can the different sources be arranged and availed for deployment or use. The faster the better and sometimes, raising equity can take relatively a longer period given the number of stakeholders involved.

Dilution of EPS: Debt does not dilute the earning per share (EPS) and as such, for a company that is sensitive to this performance variable will tend to avoid issuing equity.

Loss of control or voting rights: Issuance of equity may lead to dilution of control; this may alter the balance of power as new investors could come in.

Terms and conditions of the debt: Terms and conditions attached to debt need to be evaluated so as to confirm that they do not disadvantage the issuer of debt. And if the conditions are adverse, equity will be preferred.

(b) Evaluation of the investment decision using adjusted present value (APV)

Evaluation of the financing side effects in Shs ('000,000)

(i)Tax relief on interest payments:
Amount borrowed = 60% x 1,500m = 900
Interest expense per annum = 10% x 900 = 90
Tax relief per annum = 30% x 90 = 27
PV of tax relief = 27 x AF (yr 2 – 5) at 10% = 27 x 2.882 = 77.8

(ii)Benefit of paying at low interest rate of 10% (subsidized loan)
Saving in interest cost = 900 x (15% - 10%) = 45
PV of the benefit = 45 x AF (yr 1 – 4) at 10% = 45 x 3.170 = 142.65

(iii)Issue costs
Amounts from rights issue = 40% x 1,500 = 600
Gross up the amounts = 600 x 100/95 = 631.6
PV of the Issue costs = 5% x 631.6 = 31.6

Determination of adjusted present value (APV):
APV = Base case NPV + PV of tax relief on interest + PV of saved interest cost on subsidized loan – PV of issue costs.

	Shs 'million'
Base case NPV	32
PV of tax relief on interest	77.8
PV of saved interest cost	142.65
PV of issue costs	(31.6)
APV =	220.85

Evaluation;

The proposed expansion into production of hand sanitizers is viable as it results into a positive APV of Shs 220.85 million, hence the project should be undertaken/accepted.

(c) Causes of and measures to mitigate financial distress in organisations:

Causes of financial distress in organisations;

- Low revenue levels and high expenses which result from failure to retain sufficient number of customers and lack of an appropriate expenses control approach;
- Poor debt management which usually result from increased gearing levels of a firm without matching them with increased debt servicing capacity;
- Cash flow challenges that arise out of high levels of cash outflows matched with insufficient cash inflows;
- Fraud and inadequate accounting practices that result into making decisions that are not backed up by complete and accurate information;

Measures to mitigate financial distress;

- Capital reconstruction – This is undertaken to improve both the mix of different types of capital and the timing of the availability of funds and it includes strategies like conversion of debt to equity to reduce gearing levels of the firm.
- Renegotiation of terms of debt – Shareholders of the distressed firm can agree to restructure the terms of their term borrowing if the likely benefits will yield a better result other than dissolution of the firm;
- Issuance of additional capital – Shareholders of the distressed firm may issue new shares to raise capital or may dig into their own pockets and raise the required capital;

- Sealing the loopholes that are causing the financial drain to the company; this can be done by increasing operating efficiency through improved internal controls to control say fraud, and increase revenue inflows.

(d) Relationship between the dividend and financing decisions;

The dividend decision of an organization rests on whether a company should pay dividends to its shareholders or plough back the earnings to grow business. Dividends therefore represent a return by a business to the shareholders.

The financing decision of a firm rests on how particular investments are funded. It details the capital structure of the firm and the associated costs of the capital elements. The critical decision here is; which financing option has the lowest associated cost of capital.

Therefore, the dividend and financing decisions are related in a way that dividends paid to the shareholders constitute the cost of financing a business using equity capital. Hence, the decision to use equity capital will depend on how expensive/cheap equity capital is compared to other alternative sources of finance like term loans, debentures etc.

Solution 4

Project evaluation using portfolio theory analysis;

Gym Project

Season	Probability,P	Return (X)	PX	$P(X - \bar{x})^2$
Summer	0.4	16%	6.4%	0.58%
Winter	0.4	20%	8.0%	3.14%
Autumn	0.2	14%	2.8%	2.05%
			$\bar{x}$ = 17.2%	5.77%

Standard deviation = $(5.77\%)^{\wedge 1/2}$ = 2.4%

Swimming Pool Project

Season	Probability, P	Return (X)	PX	$P(X - \bar{x})^2$
Summer	0.4	25%	10%	74%
Winter	0.4	-5%	-2%	107.6%
Autumn	0.2	17%	3.4%	6.3%
			$\bar{x}$ = 11.4%	187.9%

Standard dev = $(187.9\%)^{\wedge 1/2}$ = 13.7%

Sauna Project

Season	Probability, P	Return (X)	PX	$P(X - \bar{x})^2$
Summer	0.4	12%	4.8%	2.3%
Winter	0.4	15%	6%	0.14%
Autumn	0.2	18%	3.6%	2.6%
			$\bar{x}$ = 14.4%	5.04%

Standard dev = $(5.04\%)^{\wedge 1/2}$ = 2.24%

Gym and Swimming pool

Season	Prob, P	RG - RG $\bar{x}$ (A1)	RSW - RSW $\bar{x}$ (A2)	P(A1)(A2)
Summer	0.4	-1.2%	13.6%	-6.5%
Winter	0.4	2.8%	-16.4%	-18.4%
Autumn	0.2	-3.2%	5.6%	-3.6%
			Cov (RG,RSW) = -28.5%	

Corr coeff (RG,SW) = Cov (RG,RSW)/standard dev of Gym X standard dev of swimming pool

= -28.5%/(2.4% x 13.7%) = -0.87

Gym and Sauna

Season	Prob, P	RG - RG $\bar{x}$ (A1)	RS - RS $\bar{x}$ (A2)	P(A1)(A2)
Summer	0.4	-1.2%	-2.4%	1.15%
Winter	0.4	2.8%	0.6%	0.67%
Autumn	0.2	-3.2%	3.6%	-2.3%
			Cov (RG,RS) = -0.48%	

Corr. coeff (RG,S) = Cov (RG,RS)/standard dev of Gym X standard dev of sauna

= -0.48%/(2.4% x 2.24%) = -0.09

Swimming pool and Sauna

Season	Prob, P	RSW - RSW $\bar{x}$ (A1)	RS - RS $\bar{x}$ (A2)	P(A1)(A2)
Summer	0.4	13.6%	-2.4%	-13.06%
Winter	0.4	-16.4%	0.6%	-3.94%
Autumn	0.2	5.6%	3.6%	4.03%
			Cov (RSW,RS) = -12.97%	

Corr coeff (RSW,S) = Cov (RSW,RS)/standard dev of swimming pool X standard dev of sauna

= -12.97 %/(13.7% x 2.24%) = -0.42

Portfolio risk

Gym and Swimming pool

Standard Dev = $(2.4\%^2 x 50\%^2 + 13.7\%^2 x 50\%^2 + 2x\text{-}0.87 x 2.4\% x 13.7\% x 50\% x 50\%)^{1/2}$

= 5.84%

Gym and Sauna

Standard Dev = $(2.4\%^2 x 50\%^2 + 2.24\%^2 x 50\%^2 + 2x\text{-}0.09 x 2.4\% x 2.24\% x 50\% x 50\%)^{1/2}$

= 1.57%

Swimming pool and Sauna

Standard Dev = $(13.7\%^2 x 50\%^2 + 2.24\%^2 x 50\%^2 + 2x\text{-}0.42 x 13.7\% x 2.24\% x 50\% x 50\%)^{1/2}$

= 6.46%

Portfolio return

Gym and Swimming pool = (17.2%x50%) + (11.4%x50%) = 14.3%

Gym and Sauna = (17.2%x50%) + (14.4%x50%) = 15.8%

Swimming pool and Sauna = (11.4%x50%) + (14.4%x50%) = 12.9%

Evaluation:

Gym and Sauna portfolio has the highest expected return and the lowest portfolio risk and hence should be selected as the optimal portfolio.

(b) Role of commercial banks in the financial system:

- Financial intermediation – Commercial banks take deposits from the public (depositors) and lend the funds to investors (borrowers), hence they link depositors to borrowers.
- Commercial banks facilitate trade – They transfer funds on behalf of their customers or undertake remittances of money upon instruction from trade area to another;
- Creation of wealth – Commercial banks create wealth for the savers through paying them interest on their deposits most especially savers with fixed deposit accounts;
- Absorption of risks – Commercial banks take on deposits from the public hence assuming all the security risks and they also lend money to the public which also results into assumption of credit risk;
- Provision of liquidity – Commercial banks provide liquidity to financial markets to fill short term financial gaps through provision of overdrafts hence investors in financial markets are able to take on their intended investments without liquidity regulations.

Solution 5

(a) Assessing Gearing position of CHUL

Gearing is the extent to which a company employs debt in its capital structure and it is evaluated as either operating or financial gearing.

(i) Assessment before expansion:

Operating gearing measures the extent to which a firm's operating costs are fixed rather than variable as this affects the level of business risk in the firm. It is calculated as below;

$$\text{Operating gearing} = \frac{\text{Fixed operating costs}}{\text{Total costs}}$$

$$= 26.4\text{bn}/(94.7\text{bn} + 26.4\text{bn}) \times 100 = 21.8\%$$

Financial gearing is the measure of the extent to which debt is used in the firm's capital structure and is calculated as below;

$$\text{Financial gearing} = \frac{\text{Preference share capital + Long term debt}}{\text{Total equity + Long term debt}}$$

$$= \frac{5.6\text{bn} + 26.4\text{bn} + 12.2\text{bn}}{(12.4\text{bn}+26.4\text{bn}+12.2\text{bn}+5.6\text{bn}+9.9\text{bn}+2.7\text{bn})}$$

$$= 63.9\%$$

Evaluation;

CHUL has a high financial gearing of 63.9% and a low operating gearing of 21.8%. Overall, the firm employs more debt than equity in its capital structure.

(ii) Assessment after expansion;

CHUL's revised statement of Profit or Loss;

	Shs'000'
Revenue (127,200,000 x 1.25)	159,000,000
Variable costs (94,700,000 x 1.12)	-106,064,000
Gross profit	52,936,000
Fixed operating costs (26,400,000 x 1.08)	- 28,512,000
Profit before interest and tax	24,424,000
Finance cost (1,200,000 + 1,500,000)	- 2,700,000
Profit before tax	21,724,000
Income tax (30% x 22,099,000)	- 6,517,200
Profit after tax	15,206,800

$$\text{Operating gearing} = 28.512\text{ bn}/(28.512\text{ bn} + 106.064\text{ bn}) \times 100$$

$$= 21.2\%$$

$$\text{Financial gearing} = \frac{5.6\text{bn} + 26.4\text{bn} + 12.2\text{bn} + 10\text{bn}}{(12.4\text{bn}+26.4\text{bn}+12.2\text{bn}+5.6\text{bn}+9.9\text{bn}+10\text{bn} +2.7\text{bn})}$$

= 68.4%

Evaluation;

CHUL's operating gearing position will marginally decrease from 21.8% to 21.2% while its financial gearing will increase from 63.9% to 68.4%. Hence, the expansion of operations does not significantly alter CHUL's gearing positions.

(b) Forms of Efficient Market Hypothesis;

Weak hypothesis

This hypothesis asserts that all past market prices and data such as sequence of share prices, trading volumes, rates of return are fully reflected in securities prices.

Technical analysis is of no use because movements in share prices will follow a random pattern such that any attempt to study past share prices to project the future will fail.

Semi-strong hypothesis

This hypothesis asserts that all publicly available information is fully reflected in securities prices. Therefore, fundamental analysis is of no use because public information contained in published accounts, economic forecasts and newspaper reports is absorbed in securities prices.

Strong hypothesis

This form asserts that all information about particular securities is fully reflected in securities prices whether past, public or private to the extent that even insider information is of no use.

The hypothesis asserts that securities markets are flooded with many intelligent and well informed investors looking for under and overpriced securities to buy and sell

Implications of efficient market hypothesis;

To investors;

- Fundamental analysis is a waste of money and for as long as efficiency is maintained, the average investor should simply select a suitably diversified portfolio thereby avoiding costs of analysis and transaction;
- Investors will correctly assess the level of risk associated with an investment and impose an appropriate rate of return because companies cannot adopt strategies to influence the rate of return;
- There are no undervalued businesses. The share prices for all companies are accurate and investors need not to spend time looking for undervalued securities;

- The perception of a fair game market could be improved by more constraints and deterrents placed on insider dealers.

To companies;

- Focus on substance and not short term appearance – Companies are unable to fool investors through creative accounting because most of the time, these tricks are transparent to investors who are able to interpret the real position;
- The timing of security issues does not have to be fine-tuned because the shares are correctly priced and the next move in prices is just as likely to be down as up hence past price movements have nothing to say about future price movements;
- Large stocks of new shares can be sold without moving the price because old shares of the same company already exist that supply of new shares does not come into the equation to influence share prices.

ANSWERS TO TEST PAPER 11
CPA (U) DECEMBER 2021

Solution 1

To: The Managing Director, OTL

From: Consultant

Date: Exam date

Subject: Evaluation of proposed investments, Financing options and impact of bribery.

(a) Evaluation of the proposed Foreign Direct Investment (FDI) using Net Present Value (NPV) technique.

	Year 0	Year 1	Year 2	Year 3	Year 4
Sales revenue		4,368,000	4,804,800	5,285,280	5,813,808
Variable costs		(1,500,000)	(1,650,000)	(1,815,000)	(1,996,500)
Fixed costs		(300,000)	(318,000)	(337,080)	(357,305)
Taxable profit		2,568,000	2,836,800	3,133,200	3,460,003
Tax @ 30%			(770,400)	(851,040)	(939,960)
After tax profits		2,568,000	2,066,400	2,282,160	2,520,043
Capital allowances			450,000	337,500	253,125
Working capital	(436,800)	(43,680)	(48,048)	(52,853)	
Initial outlay	(6,000,000)				
Net cash flows in USD	(6,436,800)	2,524,320	2,468,352	2,566,807	2,773,168
Exchange rates	3,700	3,885	4,079	4,283	4,497
Net cash flows in Shs 'million'	(23,816)	9,807	10,068.4	10,993.6	12,471
Discount factor at 20%	1.000	0.833	0.694	0.579	0.482
Present Values	(23,816)	8,169.2	6,987.5	6,365.3	6,011
Net present value					

Evaluation.

The prospective FDI is financially viable with a positive NPV of Shs 2,107 million hence OTL should go ahead and acquire it.

Workings in USD

W1: Revenue- USD	Year 1	Year 2	Year 3	Year 4
Sales revenue (60x52x1400)	4,368,000			
Inflation factor		1.1	1.1	1.1
Total revenue	4,368,000	4,804,800	5,285,280	5,813,808

W2: Capital allowances- USD				
Year	Opening balance	WDA at 25%	Tax saved @30%	Timing
1	6,000,000	1,500,000	450,000	Year 2
2	4,500,000	1,125,000	337,500	Year 3
3	3,375,000	843,750	253,125	Year 4
4	2,531,250	632,813	189,844	Year 5

W3: Variable costs (Materials and labour)- USD				
	Year 1	Year 2	Year 3	Year 4
Variable costs	1,500,000			
Inflation factor		1.1	1.1	1.1
Total variable cost	1,500,000	1,650,000	1,815,000	1,996,500

W4: Fixed costs- USD				
	Year 1	Year 2	Year 3	Year 4
Variable costs	300,000			
Inflation factor		1.06	1.06	1.06
Total fixed costs	300,000	318,000	337,080	357,305

W5: Working capital (10% of sales, injected at Start of year - USD					
	Year 0	Year 1	Year 2	Year 3	Year 4
Revenue		4,368,000	4,804,800	5,285,280	5,813,808
Computation factor		0.1	0.1	0.1	0.1
Working capital:					
Total required	436,800	480,480	528,528	581,381	
Incremental amount	(436,800)	(43,680)	(48,048)	(52,853)	

(b) Factors that hinder the success of FDIs;

- Competing priorities e.g. other projects competing for the same resources;
- Political restrictions on foreign investors;
- Legal compliance requirements;
- The price stated is quite high and may not at fair value;
- Failure by SCI to finalize the procedures required. If some procedures are left uncompleted, it may cause challenges after acquisition;
- Debt covenants between SCI and its creditors;
- Expertise required to manage the entity may not be available;
- Lack of information on costs may make evaluation unreliable.

(c) Appraisal of local projects A, B and C using Profitability Index technique;

Projects A, B and C.						
Project	Outlay: Shs 'million'	NPV Shs 'million'	Gross inflows Shs 'million'	Profitability Index	Ranking	
A	200	100	300	1.50	2nd	
B	190	52	242	1.27	3rd	
C	150	95	245	1.63	1st	

Determining NPV of Project B:

	Cash flows; Shs million	DCFs at 14%	PVs (Shs. Million)
Year 0	(190)	1.000	(190)
Years 1-4	80	2.914	233
Year 4	15	0.592	9
		NPV	52

(i) If the projects are divisible:

OTL should select project C in full and benefit from NPV of Shs 95 million. The outlay required will be Shs 150 million, leaving a balance of Shs 150 million on the funds allocated for local projects. OTL should use this balance (Shs 150 million) in project A, which will be partially implemented. The NPV derived from project A will be, $\frac{150}{200}$x 100m = Shs 75 million. Total wealth added to OTL would be 95 +75= Shs 170 million.

(ii) If the projects are indivisible:
With indivisible projects, a project is either undertaken in its totality of rejected wholly. Accordingly, OTL should choose project A only, since it generates the highest NPV of Shs. 100 million.

(d) Types and causes of capital rationing in investment appraisal:
Capital rationing is a situation where a company has a limited amount of capital to invest in all wealth enhancing (positive NPV) projects. When this happens, the different possible projects have to be compared with one another in order to allocate the available capital most effectively.
There are 2 types of capital rationing, i.e. soft (internal) capital rationing and hard capital (external) rationing.

Soft capital rationing is mainly caused by management's unwillingness to raise more funds to finance investments.

The reasons for this may include;
- Fear of outsiders gaining control of the business
- Fear of large fixed interest payments
- Internal budget ceilings
- Adoption of organic/ conservative growth and financial policies, especially when an economy is facing of recovering from a recession.

Hard capital (external) rationing is where the firm's ability to raise funds is limited by external factors such as;

- Where lending institutions place a limit to the amount that can be borrowed by the firm.
- Where a company's share prices are depressed
- Where the cost of getting additional funds is too high

(e) Islamic and conventional modes of finance;

The difference between Islamic and conventional can be analyzed in the following perspectives:

Focus:
Islamic finance focuses on investment while conventional banking focuses on lending;
Islamic finance focuses on soundness of the project being invested in while conventional banking focuses on the borrower's ability to repay the loan;

Emphasis:
Islamic banking emphasizes coordination with partners in resource mobilization while conventional banking emphasizes borrowing during resource mobilization;

Criteria:
Islamic financing applies moral criteria in appraising investments while conventional banking applies financial criteria only;

Interest/riba:
In Islamic finance, riba is prohibited; returns are based on profit or loss, whereas in conventional banking, interest is acceptable and forms the core return on loans;

Uncertainty:
Any contract based on non-occurrence of a future uncertain event is generally not allowed in islamic finance e.g. financial derivatives, while in conventional banking, financial derivate are permissible products.

Prohibited activities:
Some investments are not permitted in Islamic financing e.g. those involving pork, pornography, fire arms, etc.; while in conventional banking, there are no explicit prohibitions.

(f) The potential impacts of bribery on an entity like OTL:

Bribery is the act of giving money, goods or other forms of recompense to a recipient in exchange for alteration of their behavior to enable the giver obtain a benefit that the recipient of the bribe would otherwise not offer.

Consequences:

- In procurement processes, the goods or services procured may not be of good quality;
- The price of goods and services will be high, possibly to factor in the bribes paid;

- High caliber staff may leave an entity that tolerates bribery – for fear that their careers may be ruined;
- Infighting of staff at the workplace, sometimes some staff may be harassed /eliminated/ dismissed. At the extreme, some may be killed to conceal the vice;

Solution 2

(a) Evaluation of the planned investment;

(i) Using Covariance analysis;

Covariance between WEL and the stationery industry					
State of the Economy	Probability (p)	WEL (%)	Stationery project (%)	P(Rw - Er)(Rs- Er)	
		Rw – E(r)	Rs – E(r)		
Recession	0.25	(1.6)	(2.15)	0.86	
Depression	0.15	(5.6)	(5.15)	4.326	
Recovery	0.20	(0.6)	(1.15)	0.138	
Boom	0.40	3.4	3.85	5.236	
				10.56	

Evaluation:

The covariance between WEL and the stationery project is 10.56, which is positive and strong. Although this is not conclusive, it suggests a strong relationship between returns of WEL and those of the stationery project; hence WEL should not undertake the stationery manufacturing project.

(ii) Using Correlation analysis;

State of the Economy	Prob.	Returns for WEL	E(r)	Rw – E(r)	$P(Rw- E(r))^2$	
Recession	0.25	16	4.0	(1.6)	0.64	
Depression	0.15	12	1.8	(5.6)	4.704	
Recovery	0.20	17	3.4	(0.6)	0.072	
Boom	0.40	21	8.4	3.4	4.624	
			17.6		10.04	
Risk of WEL's returns					3.17	

State of the Economy	Prob	Returns for Stationery	E(r)	Rs - E (r)	$P(Rs- E(r))^2$	
Recession	0.25	17	4.25	(2.15)	1.16	
Depression	0.15	14	2.1	(5.15)	3.98	
Recovery	0.20	18	3.6	(1.15)	0.26	
Boom	0.40	23	9.2	3.85	5.93	
			19.15		11.33	
Risk of the Stationery project's returns					3.37	

Correlation coeff. = $\frac{covariance\ a,b}{\sigma A * \sigma B}$

= $\frac{10.56}{3.16\ X\ 3.36}$ = 0.99

The correlation coefficient is 0.99, which is strong and positive. This suggests that returns of WEL will not be well diversified by returns of the stationery project, since they move in the same direction. On this consideration, it would not be appropriate for WEL to invest in stationery manufacturing.

(b) WEL's cost of equity using Capital Asset Pricing Model.

State of the Economy	Probability	Returns on the Market (%)	E(r)= p*r
Recession	0.25	21	5.25
Depression	0.15	16	2.4
Recovery	0.20	20	4.0
Boom	0.40	20	8.0
			19.65

Compute the beta value for WEL;

Covariance between WEL and the market					
State of the Economy	Probability	Rw- E(r)	Rm – E(r)	P(Rw - Er)(Rm- Er)	
Recession	0.25	(1.6)	1.35	(0.54)	
Depression	0.15	(5.6)	(3.65)	3.066	
Recovery	0.20	(0.6)	0.35	(0.042)	
Boom	0.40	3.4	0.35	0.476	
				2.96	

State of the Economy	Prob	Market returns (%)	E(r)= p*r	Rm- E(r)	P(Rm- E(r))^2	
Recession	0.25	21	5.25	1.35	0.456	
Depression	0.15	16	2.4	(3.65)	1.99	
Recovery	0.2	20	4.0	0.35	0.02	
Boom	0.4	20	8.0	0.35	0.05	
			19.65		2.516	
Risk of the Market's returns					1.59	

Correlation between WEL's returns and those of the market is computed as;

= $\frac{2.96}{(3.17 \times 1.59)}$ = 0.59

Thus β= $\frac{0.59 \times 3.17}{1.59}$ = 1.18

Thus, Using CAPM, Ke= 13% + (19.65% - 13%) x 1.18 = 20.85%
Underlying assumptions of CAPM;

- Investors aim to maximize economic returns
- Investors are rational and risk averse
- Investors are broadly diversified across a range of investments
- Investors are price takers
- Investors can lend and borrow unlimited amounts at risk-free interest rate
- No transaction costs
- No taxation
- Securities are divisible into small parcels
- All information is available to all investors at the same time

Solution 3

(a) Discussion of the nature and role of financial markets in the Uganda;
A financial market is a mechanism that allows participants to easily buy and sell financial securities (such as stocks and bonds), commodities (e.g. precious metals or agricultural goods) and other items at low transaction costs and prices that reflect efficient market hypothesis.
Nature of financial markets;

Financial markets in Uganda comprise of capital markets which deal in stocks, bonds and other commodities, money markets which deal in short-term debt financing and investments such as Treasury bills, insurance markets which deal in insurance products, foreign exchange markets which deal in sale and purchase of foreign currencies, mortgage markets which deal in loans for specified periods based on residential and commercial properties.
Role of financial markets;

Financial intermediation;
Financial markets take deposits from the depositors and availing it to those who don't have enough to carry out the desired activities through loans and advances. Capital is freed from where it is idle to where it can be utilized productively;

Facilitation of business;
Financial markets facilitate trade thereby making markets dynamic. Funds are transmitted from one source to another both within and outside boarders;

Generation of wealth;
Savers are able to generate income. Borrowers are able to obtain funds to do business at a profit and pay back borrowed funds;

Absorption of financial risks;
Through economies of scale, financial markets are able to absorb risks such as credit risks and risks of storage which would be high for individuals;

Provision of liquidity;

Financial markets fill financing gaps over different time horizons by providing funds to any size of project;

Financial markets help to efficiently direct the flow of savings and investment in the economy in ways that facilitate the accumulation of capital and the production of goods and services;

Stabilization of the economy;
Most economic and monetary policies are implemented through the financial system e.g. those implemented by Bank of Uganda;

(b) Primary and secondary markets;

A primary market is where newly issued securities are traded. In the primary market, investors deal directly with the company wishing to raise funds. In the primary market, securities are issued through initial public offers, offer by subscription/ prospectus, offer for sale, placements and rights issues.

A secondary market deals with securities that were already bought in the primary market. The primary market lasts a short period after which securities are listed on the stock exchange. Participants who bought securities in the primary market and wish to sell them execute their deals in the secondary market.

Forms of equity and debt finance;

Equity finance:
Equity finance refers to funds raised by the owners of a company in form of ordinary share capital, or retained earnings. Retained earnings constitute profits a business generates from its operations over time which is not paid out as dividends.

Equity finance may also arise from other sources such as through making a rights issue, Angel Investors, Venture Capitalists, Crowdfunding, and Initial Public Offering.
Debt finance:
Debt finance is finance raised through selling debt instruments to investors, most commonly in the form of term loans or bonds. It consists of term loans, debentures and short term borrowings.
The key differences between debt and equity finance are that;

Debt investors are entitled to a contractual set of cash flows (interest and principal), whereas equity holders have a claim on the residual cash flows of the firm, after it has satisfied all other claims and liabilities;

Interest paid to debt investors represents a tax-deductible expense, whereas dividends paid to equity investors has to come out of profit after tax;

Debt has a fixed maturity, whereas equity has an infinite life;

Equity investors enjoy the prerogative to control the affairs of the firm, whereas debt investors play a passive role except that they may try to impose restrictions to protect their interests.

(c) Computation of the dividend payable by GCS;

K_e= 14%

P_o = Shs 15,000; g = 3%

Value of GCS per share is given by the formula;

15,000 = $\frac{Do\,(1+0.03)}{0.14-0.03}$. By solving for Do, we obtain the Dividend per share as;

Dividend per share = Shs 1,602.

Forms of settling dividends:

Cash form;

This is where the company pays dividends in cash;

Bonus shares/ scrip dividend;

This involves payment of dividends in a form of shares. The shareholders do not pay for these shares.

Stock split;

This is where the company lowers the par value of the share to increase the number of shares proportionately. Bonus shares may be issued to satisfy existing shareholders in a situation where the cash position has been maintained.

Reserve split/ reverse stock split;

The Company can reduce the number of shares in issue and increase the par value of the share.

Share repurchase;

The Company can repurchase some shares to reduce on the number of shares in issue, and then increase the share price.

Solution 4

To: Board of EFEL

From: Financial Consultant

Date: Exam date

Subject: Valuation of EFEL, Corporate restructuring and risks in investment appraisal.

(a) Valuation of EFEL;

(i) Net asset valuation technique;

	Shs '000'	Shs '000'
Non-current assets:		
Land and buildings		1,500,000
Property, plant and Equipment (200m – 25m)		175,000
Motor vehicles		800,000
		2,475,000
Current Assets:		
Inventory (100m – 4m)	96,000	
Trade Receivables (70m – 2.8m)	67,200	
Short-term investments (100m – 3m)	97,000	
Prepayments	30,000	
Cash	300,000	590,200
Total Assets		3,065,200
Less: Total liabilities:		
Tax (20m+5m)		(25,000)
10% Bank loan		(60,000)
10% Preference shares		(40,000)
Trade payables		(100,000)
Net assets = Value of EFEL		2,840,200

(ii) Price – Earnings (P/E) ratio;

Using P/E method,
market price per share= EPS x P/E ratio.

The P/E ratio for a similar listed company (BAE) is 18.
It is assumed that the P/E ratio for EFEL is 2/3 of 18= 12.

Next, we compute EPS.

$$\text{EPS} = \frac{\textit{Profit attributtable to ordinary shareholdersx}}{\textit{weighted average number of shareholders in the year}}$$

Where PAT= Shs 250,000,000
Number of shares= 1,800,000,000/ 10,000= 180,000 shares

EPS= 250,000,000/180,000= Shs 1,389.

Thus, market price per share= Shs 1,389 x 12 = Shs 16,668.
Value of EFEL = 16,668 x 180,000 shares = Shs 3,000,240,000

(b) Role of corporate restructuring;

Corporate restructuring is the process of re-organising one or more aspects of a company's capital structure or its operations significantly in order to improve efficiency and profitability.

It is undertaken to serve the following purpose;

- To improve the market positioning of the organisation in order to be more competitive;
- To reduce operational costs in order to enable the organisation survive adverse economic climate;
- To enhance revenue generation in order to ensure sufficient profitability;
- To improve operational efficiency by eliminating waste from operations of the organisation;
- To provide a new strategic direction for the organisation and creating a more effective management model as a way of ensuring attainment of organisational goals;
- To improve corporate performance to achieve competitive advantage by adopting the radical changes brought out by information technology;
- To ensure optimum capital structure employing appropriate mix of loan and equity funds to reduce the cost of servicing and improve return on capital employed.

(c) Techniques of addressing risks in investment appraisal;

  - Diversification – Investing in projects which are negatively correlated;
  - Setting a maximum payback period for new / potential investments;
  - Using a high discount rate;
  - Making prudent estimates of cash flows to assess worst possible situation;
  - Use of sensitivity analysis to assess the degree of responsiveness of the viability of the proposed investment to changes in any of its variables;
  - Use of certainty equivalent factors to ensure that only risk-free/less cash flows are used in investment appraisals;
- Use of simulation models.

Solution 5

(a) Hedging against foreign currency risk;

Through Currency Options:

A currency option is a contract giving the buyer (the holder) the right, but not the obligation, to buy or sell a specific amount of currency at a specific exchange rate (strike price) on or before the specified future date.

The purchaser of the option can either exercise the right or let it lapse and Options can be traded over the counter or arranged between parties. Options can be call options or put options.

A call option gives the holder a right to buy the underlying currency while a put option gives the holder a right to sell the underlying currency. MTG and KTG can hedge against foreign currency risk using options by:

Identifying the standard size futures contracts to fix the exchange rate at some future date and set up the hedge. Subsequently, MTG and KTG pay the upfront premium and then wait for the transaction/ settlement date.

On the transaction/ settlement date, MTG and KTG should compare the option price with the prevailing spot rate to determine whether the option should be exercised or left to lapse.

Through Swaps:

A swap is an arrangement whereby two parties contractually agree to exchange payments on different terms, for example in different currencies, or one at a fixed rate and the other at a floating rate.

MTG and KTG can hedge against foreign currency risk using foreign currency swaps as follows;

If both MTG and KTG need funds to invest in Uganda and France respectively, they can enter into a forex swap agreement. They would swap their borrowings in form of principal and interest for a pre-determined period of time. The principal loan amounts would be swapped back at the original spot rate, while for interest payments, the timing of the swap would depend on the terms stipulated in the forex swap agreement.

Through Futures;

A foreign currency futures contract is an agreement to exchange a specific amount of a currency for another at a fixed future date for a predetermined price.

MTG and KTG can hedge against foreign currency risk using futures as follows;

They would need to identify standard size futures contracts to fix the exchange rate at some future date and eventually set up the hedge;

They should then contact the exchange and pay the initial margin, then wait until the transaction/ settlement date.

(b) Role of international capital flows to an economy;

- Reduce the cost of corporate finance – Foreign exchange moves freely at prices that are determined by demand and supply;
- Improve market liquidity and efficiency;
- Improvement in the financial system structure and development of real economy;
- Inflows of foreign currency improves the country's balance of payments position
- Capital flows facilitate hedging in managing forex and interest rate risks;
- Supports the globalization of the financial system through having local and foreign enterprises operating smoothly from anywhere using various currencies;
- Facilitates efficiency in transactions i.e. where invoices are quoted in a specific currency, payments are made easily in that currency without the burden of exchanging currencies.

(c) Relevance of dividend decision using;

(i) Traditional school of thought;
The traditional school of thought is that dividend policy is important for shareholders due to the following reasons;

Need for current income;
Shareholders prefer to receive a shilling today rather than wait for the future. This is because future dividends or capital gains are less certain and will thus be valued less;

Information signaling;
Dividend announcements/payments convey positive information to investors regarding the firm's future prospects. Stock prices tend to increase when an increase in dividends is announced, the reverse being true;

(ii) Modigliani and Miller (M&M) model;

- Modigliani and Miller argue that that dividend policy is irrelevant and that in a perfect capital market, shareholders are indifferent between dividends and capital gains and the value of a company is determined solely by the earnings power of its assets and investments.
- Relatedly, where there is absence of tax discrimination between dividend income and capital appreciation, given the firm's investment policy, its dividend policy may have no influence on the market price of the shares, according to this model.

ANSWERS TO TEST PAPER 12
CPA (U) MARCH 2022

Solution 1

< Exam Date >

The Board of Directors
Jubilation Finance Limited (JFL)
KAMPALA

Dear Sir;

Re: Analysis of Projects A, B and C:

The captioned subject refers.

Please find attached a report on the analysis of the projects A, B and C.

I submit to you this report in partial fulfilment of my employment terms as Head of Finance of JFL.

In case you need further clarification, I am available at your convenience.

Thank you,

Head of Finance
Jubilation Finance Limited (JFL)

1(a) Stages of the capital budgeting process and the role of BOD in the process.
The major steps in the capital budgeting processes may include:

- Determine the ultimate objective
- Idea generation
- Appraisal/ evaluation of possible ideas
- Selection of the best alternative
- Implementation of the selected alternative
- Monitoring and evaluation

The role of the Board in the capital budgeting process:

Shareholders are the owners of the entity. However, sometimes they are too many and may lack requisite skills and time to provide oversight to an organisation. Hence, they appoint Directors to oversee the business on their behalf. The role of the Board of Directors in capital budgeting include the following;

- Setting or approving policies and guidelines to be followed in the capital budgeting process.
- Setting priorities for capital expenditures and appropriating resources to viable proposed investments.
- Considering and approving proposals by management for mobilisation of funds needed in capital investments.
- Reviewing, considering and approving the capital expenditure budget and work plan.
- Conducting performance monitoring, evaluation and review of undertaken capital investments to assess whether they add value to the wealth of shareholders.

- Taking corrective measures to ensure successful implementation of work plans and budgets.

1(b) Computation of the cost of capital to apply in evaluating the projects.

- JFL is seeking to invest in a different sector which has different beta as well as D:E ratio. Beta = 1.32; D:E = 60:40 or 3:2; Tax rate =30%.
- We start by ungearing the beta:

  β asset = β equity x E/ (E + D(1-t))

  = 1.32 x 2/(2+3(1 – 0.3))
  = 0.64
- Next, we compute β equity of the new project at JFL's D:E ratio of 40:60 or 2:3

  β asset = β equity x E/ (E + D(1-t))
  0.64 = β equity x 3/(3+ 2(1 – 0.3))
  0.64 = β equity x 0.6818

  β equity= 0.94

  Thus, using Capital Asset Pricing Model, $K_e = R_f + \beta e (R_m - R_f)$
  Whereby R_f= 12%, β= 0.94 and R_m= 15%

  K_e= 12% + 0.94 (15%- 12%) = 14.82%.

  Kd= 12% (1 – 0.3) = 8.4%

  Thus, WACC = Ke x $\frac{E}{E+d} + Kd \times \frac{D}{E+D}$

  = 14.82% x $\frac{3}{3+2} + 8.4\% \times \frac{2}{3+2}$

  =8.892% + 3.36%= 12.252% or 12%

  Thus, the cost of capital to be applied is 12%.

1(c) Evaluation of Projects A, B and C using Profitability Index technique.

- Profitability Index (PI) formula is; PI = 1 + $\frac{Net\ Present\ Value}{Initial\ investment}$
- The investment decision rule is that we accept an investment if its PI is greater than 1 and reject an investment if its PI is less than 1.

Project A:
Initial outlay= Shs 46.7 billion. This is an annuity with cash inflows of Shs 10.1 billion effective year 2, per annum, in perpetuity. The present value interest factor of the annuity at 12% is computed as follows;

1 / r x Pv of 12% in year 1

= $\frac{1}{0.12}$ x 0.893

⇨ 8.333 x 0.893=7.442

Years	Cash flows Shs 'million'	PVA Factor at 12%	Present Value (PV) Shs million
0	(46,700)	1.000	(46,700)
2- onwards	10,100	7.442	75,164
Net Present Value (NPV)			28,464

Profitability Index = 1 + 28,464 = 1.61
46,700

Project B

Initial outlay = Shs 52.3 billion. It is expected to generate annual profit of Shs 13.9 billion. It has a residual value of Shs 5.7 billion after 3 years (project lifespan).

Convert profits to cash flows by adjusting for depreciation, a non cash expense.

Depreciation (Shs billion) = $\frac{52.3-5.7}{3} = 15.53$

Annual cash inflows = 13.9bn + 15.53bn = Shs 29.43 billion.

Years	Cash flows Shs 'million'	PVIF at 12%	PV Shs million
0	(52,300)	1.000	(52,300)
1 – 3	29,430	2.402	70,690.86
3	5,700	0.712	4,058.4
Net Present Value (NPV)			22,449.26

Profitability Index = 1 + $\frac{22,449.26}{52,300}$ = 1.43

Project C:

Project C requires Shs 36.9 billion and is expected to generate annual cash inflows of Shs 13.5 billion over 3 years.

Year(s)	Cash flows Shs 'million'	PVAF Factor at 12%	PV Shs million
0	(36,900)	1.000	(36,900)
1 – 3	13,500	2.402	32,427
Net Present Value (NPV)			(4,473)

PI = 1 + $\frac{(4,473)}{36,900}$ = 0.88

Conclusion/ Advice:

- Project C should be rejected since its PI is less than 1.
- Projects A and B have PIs of 1.61 and 1.43 respectively with are greater than 1. Thus, they should be accepted and considered for investment.
- Other factors held constant, JFL should consider investing in Project A first (Shs 46.7 billion), since it has the highest PI of 1.61.
- The balance (90bn – 46.7bn = Shs 43.3 billion) should thereafter be allocated to Project B; since it is divisible and the projects can be independently considered.

1(d) Validity of Profitability Index (PI) technique in investment appraisal.

Arguments in support of PI technique:

- It is a discounted technique hence considers time value of money.
- It considers relevant cash flows which are more realistic and difficult to manipulate.
- It considers all cash flows that occur during the entire lifespan of the project.
- It is consistent with shareholder wealth maximisation objective since it involves discounting cash flows basing on the entity's cost of capital/required rate of return.

Arguments against PI technique:

- The PI is neither easy to compute nor to understand for a lay person as it involves many and complex computations.
- The cost of capital used to discount cash flows may not be readily known and may be difficult to estimate with reasonable precision.
- The technique uses cash flows which are difficult to estimate as they relate to the future.

Conclusion:

The technique is modern and strong – but with a few weaknesses; and like any other investment appraisal technique, it should not be used alone – but rather with another technique that will collaborate its conclusions.

1(e)

Sensitivity analysis of the most viable project to Initial outlay

- We do sensitivity analysis (SA) on Project A since it is the most viable project i.e. has the highest PI.
- In doing sensitivity analysis of Project A to initial outlay, we assess by how much the initial investment would increase for Project A to have zero NPV.
- Since the NPV of the project is Shs 28.464 billion, the initial cost would need to increase by this figure for NPV to reduce to zero;

Sensitivity Analysis to initial outlay = $\frac{\text{NPV}}{\textit{Initial outlay}} \times 100$

⇨ $\frac{28.464\text{bn}}{46.7\text{bn}} = 60.9\%$

Thus, holding other factors constant, for NPV to become zero, the initial outlay of the project would have to increase by 60.9%.

Sensitivity to the Cost of Capital

We compute the internal rate of return (IRR) of Project A using the formula, $\text{IRR} = a + \frac{A}{A-B}(b-a)$

Where; a is the lower discount rate
b is the higher discount rate
A is NPV obtained using a lower discount rate (positive NPV)
B is NPV obtained using a lower discount rate (negative NPV)

Year	Cash flows Shs million	PVAF @ 12%	PV Shs million	PVAF @ 20%	PV Shs million
0	(46,700)	1.000	(46,700)	1.000	(46,700)
2- onwards	10,100	7.442	75,164	4.165	42,066.5
NPV			28,464		(4,633.5)

Thus, IRR = 12% + 28,464/(28,464 + 4,633.5) x (20% - 12%)

⇨ = 18.9%

Thus, for NPV to become zero, the cost of capital would have to increase by;

$\frac{18.9-12}{12} \times 100 = 57.5\%$

Conclusion/ advice:

Whereas Project A is sensitive to changes in both initial investment and cost of capital, it is more sensitive to the change in cost of capital than initial outlay because cost of capital requires a smaller change of 57.5% for NPV to become zero. JFL should therefore put the necessary safeguards in place to ensure that the two variables don't escalate if the project is to be successful.

1(f). Discussion of risk adjusting techniques in investment appraisal.

The available tools / techniques may include the following:

- Sensitivity analysis to guide necessary interventions
- Using high or risk- adjusted discount factors
- Using discounted payback period technique
- Using expected values
- Selecting projects with low standard deviation
- Using certainty equivalent factors to convert cash flows to risk-less cash flows.
- Setting a high payback period for investments
- Use of simulation models

1(g). Discussion on how Ijara, *Wakala and Tawarruq* Islamic financing structures can be applied to finance a business like FSL.

Ijara Islamic Financing

This is similar to leasing (operating or finance leases). The borrower finds a property and agrees on a price with the owner. The borrower approaches the bank to purchase the property (no deposit is required). The bank takes possession of the property. The borrower and the Bank enter an agreement whereby every month the borrower pays rent to the bank and a contribution towards purchase of the property from the bank. Overtime, the borrower buys out the bank and takes possession of the property.

Wakala Islamic financing

This is a contract of agency in which one party appoints another party to perform a certain task on its behalf, usually for a payment i.e. a fee or a commission. For example, the financing entity (bank) may charge fees upon providing certain services to its customers or the bank can also pay a fee to

an agent to perform an activity on its behalf, e.g. to take delivery of goods or investing the bank's funds. The agency contract would stipulate the duties and responsibilities of both the principal and agent.

Tawarruq Islamic financing
Tawarruq is a mode through which Islamic banks provide personal financing to facilitate supply of cash to their customers whereby a customer purchases a commodity from the bank on deferred payment basis, the customer then then sells the commodity in the market to a third pay for cash. The cash funds obtained may be used for investment or managing liquidity in the business.

1(h). Comment on the resolution made at the AGM to donate 10% of JFL's profit to facilitate activities of the ruling political party.

Contribution of corporate funds to political parties/ organisations is prohibited by most company articles and memoranda of association. In the unusual circumstances that such funding is allowed, then it becomes legal.

The Laws of Uganda, which take precedence over the AGM's resolution, prohibit companies from participating in partisan politics. Thus, such financial contribution would be prejudicial to the Law and public interest and JFL risks suffering the penalties as stipulated in the law.

- It is mentioned in the scenario that a few members were of the view that the company shouldn't participate in partisan politics to avoid potential risks that may arise from political regime change in future. Their concerns are valid if JFL is to preserve its existence and growth in both the foreseeable and unforeseeable future.

Solution 2

2(a) Estimation of expected returns using CAPM;

Amounts in Shs 'million'

P(x)	JEL	P(X). J	BEL	P(x). B	Market	P(x). M
0.4	62	24.8	81	32.4	67	26.8
0.2	80	16	85	17	75	15
0.1	65	6.5	82	8.2	50	5
0.1	50	5	70	7	45	4.5
0.2	54	10.8	75	15	50	10
Expected returns		63.1		79.6		61.3

Amounts in Shs 'million'

P(x)	Deviation for JEL		
	Rj - E(RJ)	Sq.Dev	P. SqDev
0.4	-1.1	1.21	0.484
0.2	16.9	285.61	57.122
0.1	1.9	3.61	0.361
0.1	-13.1	171.61	17.161
0.2	-9.1	82.81	16.562
Variance			91.69

Amounts in Shs '000,000'

	Deviation			Deviation		
P(x)	Rm- E(Rm)	Sq. Dev	P. SqDev	Rb- E(Rb)	Sq. Dev	P. SqDev
0.4	5.7	32.49	13.0	1.4	1.96	0.78
0.2	13.7	187.69	37.54	5.4	29.16	5.83
0.1	-11.3	127.69	12.77	2.4	5.76	0.58
0.1	-16.3	265.69	26.57	-9.4	88.36	8.84
0.2	-11.3	127.69	25.54	-4.6	21.16	4.23
Variance			115.42			20.26

Computing project covariances;
Amounts in Shs'000,000'

P(x)	Rj - E(RJ)	Rb - E(Rb)	Rm- E(Rm)	P.DevJ x DevB	P.DevJ x DevM	P.DevB x DevM
0.4	-1.1	1.4	5.7	-0.62	-2.51	3.19
0.2	16.9	5.4	13.7	18.25	46.31	14.80
0.1	1.9	2.4	-11.3	0.46	-2.15	-2.71
0.1	-13.1	-9.4	-16.3	12.31	21.35	15.32
0.2	-9.1	-4.6	-11.3	8.37	20.57	10.40
Covariance				38.77	83.57	41.0

Computation of equity beta:

Beta for JEL $= \frac{83,570,000}{115,420,000} = 0.724$

Equity beta for BEL $= \frac{41,000,000}{115,410,000} = 0.355$

The joint equity beta after the takeover will be computed as;
(0.724 x 70%) + (0.355 x 30%)= 0.611.

Expected returns using CAPM = 5% + 0.611 (15% - 5%)= 11.11%

Advice:

The takeover is viable since its generates returns of 11.11% that is higher than the minimum required rate of return of 10%.

Thus, holding other factors constant, the takeover will be viable. However, information on correlation of the investments should be determined and used alongside the CAPM values since it was outside the scope of the analysis, yet it is relevant for decision making.

2(b) Discuss the limitations of CAPM in investment analysis; and why arbitrage pricing may be superior**.**

CAPM assumes that the variance of returns is an adequate measurement of risk. This might be justified under the assumption of normally distributed returns, but for general return distributions other risk measures (e.g. coherent risk measures) will likely reflect the active and potential shareholders' preferences more adequately.

- It is a single period model;
- The model assumes that all active and potential shareholders have access to the same information and agree about the risk and expected returns of all assets, which is not always the case;
- The model doesn't appear to adequately explain the variation in stock returns. Empirical studies show that low beta stocks may offer higher returns than the model can predict.
- The model assumes that given a certain expected return, active and potential shareholders will prefer low risk to higher risk and conversely given a certain level of risk will prefer higher returns to lower returns. It doesn't allow for active and potential shareholders who will accept lower returns for higher risk;
- The model assumes that there are no taxes or transaction costs, although this assumption may be relaxed with more complicated versions of the model.
- The market portfolio consists of all assets in all markets where each asset is weighted by its market capitalisation. This assumes no preference between markets and assets for individual active and potential shareholders, and that active and potential shareholders choose assets solely as a function of their risk-return profile. It also assumes that all assets are infinitely divisible as to the amount which may be held or transacted.
- CAPM assumes that all active and potential shareholders will consider all of their assets and optimise one portfolio. This is in sharp contradiction with portfolios that are held by individual shareholders. Human beings tend to have fragmented portfolios or rather multiple portfolios.

Why arbitrage pricing theory may be considered a superior model over CAPM.

CAPM assumes that the required rates of return depend only on one risk factor, the stock's beta. The APM disputes this and includes a number of risk factors.

APM= rf b1 RP1 +b2RP2 + …+ bnRPn

Roll and Ross suggested five macroeconomic forces that may affect returns, namely:
- Changes in expected inflation
- Unanticipated changes in inflation
- Unanticipated changes in industrial production
- Unanticipated changes in in the yield differential between low and high-grade bonds (default-risk premium)

- Unanticipated changes in the yield differential between long term and short-term bonds (term structure of interest rates).

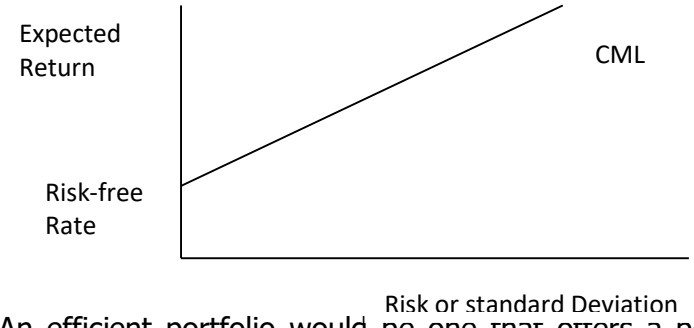
The APM is superior to CAPM in that;

- Whereas CAPM assumes that the required rates of return depend on one risk factor (the stock's beta), APM estimates the required rate of return basing on a number of macroeconomic forces and more flexible assumption requirements, hence providing more precision compared to CAPM.
- Arbitrageurs use APT to make risk-free profit by identifying and going short on overpriced securities; while concurrently going long on the portfolios the APT calculations determine to be lucrative.

2(c) Discussion of the Capital and Security market lines and their relevance in investment analysis.

The Capital Market Line (CML) is a line from the risk free rate (Rf) tangential to the efficient frontier where returns on investments are graphed against their risks. It represents portfolios that optimally combine risk and return. Any portfolio not on CML is either mean variant inefficient or not obtainable because it has more attractive combination of risks and returns that can be achieved.

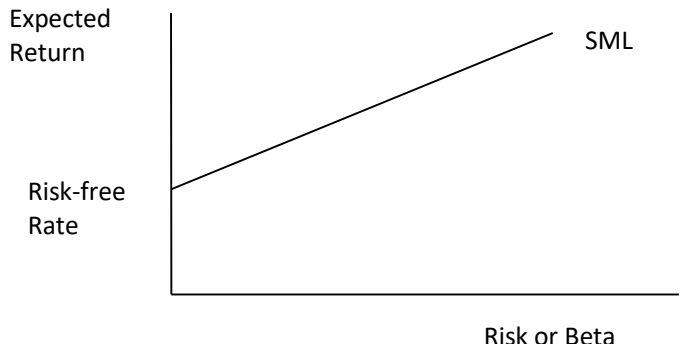
Graphical illustration of the Capital Market Line



An efficient portfolio would be one that offers a better combination of risks and returns that are offered by the CML and an inefficient one is one that offers a worse combination than that available on the CML.

The Security Market Line (SML) is the representation of the capital-asset pricing Model. It displays the expected rate of return of an individual security as a function of systematic, non-diversifiable risk. The SML is a good representation of investment opportunity cost which provides the combination of risk-free asset and the market portfolio.

Graphical illustration of the Security Market Line



The CML and SML are used to guide investors in making rational decisions that maximise wealth, which is achieved by increasing returns and reducing risk. They guide investors in figuring out optimal mixtures of risk and return to guide selection of securities and construction of efficient investment portfolios.

Solution 3

3(a). Using the concept of expected returns, advise AUL on the appropriate course of action.

State	P	Net Present Value of Projected Returns Shs '000'					
		QS	SP	SW	P. QS	P.SP	P.SW
High	0.3	850,000	900,000	1,300,000	255,000	270,000	390,000
Medium	0.5	1,650,000	500,000	1,230,000	825,000	250,000	615,000
Low	0.2	820,000	1,200,000	300,000	164,000	240,000	60,000
Expected Returns					1,244,000	760,000	1,065,000
Ranking by expected return					1st	3rd	2nd

Basing on expected NPV of the projected returns, AUL should invest in the vehicles in the order below, other factors being held constant.

However, it should be noted that using expected returns alone is not sufficient to guide AUL in making sound investment decisions. More computations should be done such as covariance, standard deviation (risk) and correlation.

3(b) Factors that AUL should consider in building its investment portfolio:

Return: AUL should invest to make money, aim at high returns, other factors being held constant

Liquidity: The investment should be easy to liquidate if cash is needed or for investment in more lucrative ventures

Security: The investment should be able to at least maintain its value- likelihood of loss should be eliminated. This may be measured by risk, standard deviation, betas, etc.

Growth prospects: There should be prospects of growth to keep it attractive

Risk spreading/ diversification: desire to avoid over- concentration and over-reliance on a single security or a narrow portfolio. One of the measures of diversification is correlation coefficient between investments/ securities.

3(c). Evaluating the validity of AUL's practice of financing business growth using equity.

Advantages of equity financing

It preserves internal control of the entity by its owners especially if shares are issued to existing shareholders

It is convenient as no stringent conditions are required to obtain more funds as lenders (e.g. banks) would require a lot of documentation and security/ collateral;

It gives shareholders priority to fund and reap benefits from their company e.g. rights issue.

It helps to control financial risk (gearing) within acceptable levels

Disadvantages of equity financing

Conventionally, equity financing is more expensive compared to debt finance, which may keep WACC high;

State of equity markets: Equity financing may not be appropriate where share prices are falling as this may cause dilution of their shareholders' wealth;

Equity financing may lead to concentration of power/ voting rights in the hands of a few shareholders which may negatively impact on strategic direction and performance of the entity;

Where short-term financing is required, insisting on using equity financing may not be appropriate as it may not address emergency needs of funds;

The entity doesn't benefit from tax shield since dividends payable to shareholders are not tax deductible.

3(d) Discussion of the regulatory framework money and capital markets in Uganda and their contribution to the development of the economy**.**

Money markets:
Money markets refer to markets for short term capital. Examples of money market instruments include overdraft, short term and medium term bank loans, treasury bills, fixed deposits, and inter-bank lending/ borrowing.

Money markets are regulated by the Central Bank, i.e. Bank of Uganda. The governing laws include Financial Institutions Act (as amended), Micro Deposit Taking Institutions Act (2003), Foreign Exchange Act (2004), The Micro Finance Institutions & Money Lenders Act (2016), etc. These legislations are guided by regulations which are issued by the Minister of Finance.

Capital markets:
Capital markets refer to markets for long-term capital. These markets facilitate buying and selling of securities such as shares and bonds.

Capital Markets are regulated by the Capital Markets Authority (CMA) which is a government body that oversees the capital industry in Uganda. The CMA was established under the Capital Markets Authority Act. Under CMA, there is Uganda Securities Exchange (USE) that operates Uganda's stock exchange market. The USE is regulated by the CMA, which in turn reports to Bank of Uganda. The CMA applies the CMA Act alongside CMA Regulations that are issued by the Minister of Finance.

Role of capital markets in development:
We can take the example of the Uganda securities exchange; whose role includes:

i) mobilisation of savings for investments as an alternative to saving in banks or buying real estate;

ii) providing easy access to funds by new and smaller companies. There are less stringent rules for new small companies known as the Growth Enterprise Segment (GEMS);
iii) liquidity creation where by securities can be converted into cash at a market price thus enabling the investor to have cash for other business ventures or alternative uses;
iv) the facilitation of equity financing which is not possible with traditional financial institutions like banks.

Solution 4

4(a) Advise GIL on the share value of NHL and on the way forward.

	Shs 'million'	Shs 'million'
PPE	4,300 – 20	4,280
Investments	1,600 x 95%	1,520
Current Assets	11,100 – (3,500 x 0.7%)	11,075.5
Total Assets		16,875.5
Less:		
15% Preference shares		(450)
Loans		(1,000)
12% Debentures		(900)
Trade payables		(2,515)
Interest payable		(175)
Tax payable	90 + 19	(109)
Bank overdraft		(35)
Other current Liabilities		(735)
Net value of Assets		10,956.5

$$\text{Number of Shares} = \frac{11,600,000,000}{1,000} = 11,600,000 \text{ shares.}$$

$$\text{Value per share} = \frac{10,956,500,000}{11,600,000} = \text{Shs } 944.5$$

Advice:
NHL appears to be a viable investment because it has positive net worth and it is in line with GIL's expansion strategy. Its value suggests that it will add to the wealth of GIL. Thus GIL should go ahead and purchase NHL subject to the acceptability of the purchase price.

4(b) Discuss the circumstances under which company valuation in corporate finance is necessary and the most appropriate approach in each case.
Company valuation may be necessary under the following circumstances:

For quoted companies, valuation may be undertaken when there is a takeover bid and the offer price is an estimated fair value that is in excess of the of the current market price per share.

To support application for listing on the securities exchange; here the interest is establishing the going concern and valuation can be done using all asset based, dividend, and earnings based valuation and an average taken.

To support a loan application – here net asset based valuation may be most appropriate.

It can be done regularly in the course of trading shares to determine is the share price represents a fair value of the company;

Shares need to be valued for taxation purposes -

If there is a proposed scheme for a merger – the most appropriate being asset based or earnings based valuation methods.

4(c). Assess the suitability of takeovers as an expansion strategy for GIL.

There are various arguments in favour and against takeovers that GIS Board needs to consider – including:

Arguments in favour of takeovers:

Speed: The acquisition of another company is a quicker way of implementing a business plan as the company acquires another organization that is already in operation. This therefore allows GIS to achieve a certain optimal level of operations much quicker than through organic growth.

Access to overseas markets: When a company wants to expand its operations in an overseas market, acquiring a local firm may be the only option of breaking into the overseas market.

Lower cost**:** A takeover may be a cheaper way of acquiring productive capacity than through organic growth because the acquisition can be in form share exchange without necessarily requiring cash outflow.

Acquisition of intangible assets: GIS, through a takeover will acquire not only tangible assets but also intangible assets such as brand recognition, reputation, customer loyalty and intellectual property which are more difficult to achieve with organic growth.

Arguments against takeovers:

Exposure to business risk: Takeovers normally represent large investments by the bidding company and account for a large proportion of their financial resources. If the acquired company does not perform as initially anticipated, then the effect on the acquiring firm may be adverse.

Exposure to financial risk: During takeover process, the acquiring firm may have less than complete information on the target company and there may exist aspects that have been kept hidden from outsiders.

Acquisition premium: At times the premiums paid are so high and the post-performance of the acquired entities may fail to justify the size of the premiums paid.

Integration problems: Most takeovers are beset with problems of integration as each company may have different cultures, history and methods of operation. This management misfit may make the whole acquisition a failure.

4(d). Measures GIL should undertake to remain financially afloat in the face of the COVID-19 epidemic

The COVID-19 pandemic is a result of a virus that started in China in late 2019, and later spread to almost all countries causing widespread infection and many deaths to varying degrees in different countries.

GIL, being in the real estate business, may be affected in different ways including:

Failure to complete projects due to lack of materials especially the imported materials;

Failure to find customers – if potential customers' incomes are affected by the pandemic;

Financial institutions may not advance money to GIL to complete its projects;

Her employees could have fallen sick during the pandemic – which could have increased its operational costs.

GIS will need to consider the following strategies:

- Introduce more flexible payments for its products – since customers disposable incomes could be compromised.
- Consider reducing profit margins so as to attract more customers.
- Diversification of their income lines beyond real estate – to sectors that may have been less affected by the pandemic.
- Reduction of operational costs – say through restructuring staff.

Solution 5

To: Finance Manager, Watsa Enterprises Limited - WEL
From: Finance Officer
Date: Exam date
Subject**:** Information to be included in the Presentation to the Board

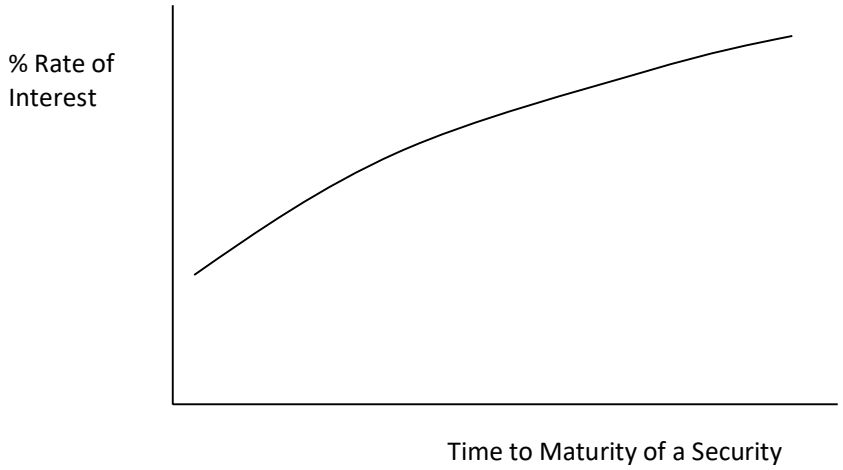
5(a) Reasons why lending interest rates in Uganda have remained relatively higher compared to other countries in the East African region.

- High operating costs of the lenders.
- High risk associated with borrowers which forces lenders to demand for higher compensation for risks assumed.
- High domestic borrowing by government which increases competition for the little credit available to the private sector.
- Institutional factors e.g. the lengthy and non-transparent legal system of settling disputes for defaulting borrowers.

- Need for higher returns by investors who invest solely to maximise return on investments.
- Uganda's financial sector is liberalised i.e. the cost of funds is determined by the forces of demand and supply for credit.

5(b) Factors that determine the shape of the yield curve.

The yield curve is a relationship between the interest rate (or cost of borrowing) and the time to maturity of the debt for a given borrower in a given currency. Yield curves are usually upward sloping, which implies that the longer the maturity, the higher the yield, with diminishing marginal increases (i.e as one moves to the right, the curve flattens out) as illustrated below;



The shape of the yield curve can be explained by three main economic theories/factors, namely;

Market expectations theory: This hypothesis assumes that the various maturities are perfect substitutes and suggests that the shape of the yield curve depends on market participants' expectations of future interest rates. These expected rates, along with an assumption that arbitrage opportunities will be minimal, give enough information to construct a yield curve. For example, if investors have an expectation of what one year interest rates will be next year, the 2-year interest rate can be calculated as the compounding of this year's interest rate by next year's interest rate. Generally, rates on long-term instruments are equal to the geometric mean of the yield on a series of short-term instruments. This theory explains the observation that yields usually move together.

Liquidity premium theory: This asserts that long-term interest rates do not only reflect investors' assumptions about future interest rates but also include a premium for holding long-term bonds (investors prefer short term bonds to long term bonds), called 'the term premium of liquidity premium. This premium compensates investors for the added risk of having their money tied up for a longer period, including the greater price uncertainty. Because of the term premium, long-term bond yields tend to be higher than short-term yields, and the yield curve slopes upward. In addition to the liquidity premium, long term yields

are also higher because of the risk of default that may arise from holding a security over a long term.

Market segmentation Theory: In this theory, financial instruments of different terms are not substitutable. As a result, the supply and demand in the markets for short-term and long-term instruments is determined largely independently. Prospective investors determine in advance whether they need short-term or long-term instruments. If investors prefer their portfolio to be liquid, they will prefer short-term instruments to long-term instruments. Thus, the market for short term instruments will receive more demand. Higher demand for the instruments will imply higher prices and lower yield, which explains the established fact that short-term yields are usually lower than long-term yields. This theory explains the predominance of the normal yield curve shape.

Preferred habitat theory: This is another version of the market segmentation theory. It states that in addition to interest rate expectations, investors have distinct investment horizons and require meaningful premiums to buy bonds with maturities outside their preferred maturity or habitat. Proponents of this theory believe that short-term investors are more prevalent in the fixed income market, and therefore long-term rates tend to be higher than short-term rates.

5(c). Discussion of the factors responsible for exchange rate fluctuations in the foreign exchange market.

Inflation: Rising inflation causes domestic prices to go up, hence causing depreciation of the domestic currency and vise-versa, leading to foreign exchange rate fluctuations. This is further explained by purchasing power parity (PPP) theory: The PPP theory states that the exchange rate between one currency and another is in equilibrium when their domestic purchasing powers at that rate of exchange are in equilibrium. The PPP theory is based on the idea that a basket of goods should cost the same regardless of the currency in which it is sold. If this is not the case, market forces will drive demand and supply until the purchasing power of the currencies are brought to equilibrium hence causing foreign exchange rates to change.

Interest rates: High interest rates attract foreign direct investments which increase demand (and thus the price) of the domestic currency and vice-versa, hence causing exchange rate movements. This is explained further by the interest rate parity (IRP) theory. IRP theory states that the difference between spot and forward exchange rates is equal to the differential between interest rates available in the two currencies.

Speculation: If speculators expect exchange rates to increase in future, they buy and hoard foreign currency in huge amounts in the current periods expecting to sell it in future and make profits. Speculation causes fluctuations in supply and demand of foreign currency, which causes fluctuations in exchange rates as the foreign exchange market seeks to remain in equilibrium. This can be explained further by the Expectations theory; which states that the current forward rate is an unbiased predictor of the spot value at that point in future. If a trader takes the view that the forward rate is lower than the expected future spot price, there is an incentive to buy forward. The buying pressure in the forward raises the

price until the forward equals the market equilibrium on the expected future spot price.

Interventions in the foreign exchange market by the monetary authority (Bank of Uganda) to achieve monetary policy objectives of either mopping up excess liquidity and increasing foreign currency in circulation.

Government policy regimes: Uganda is a free enterprise economy and under economic liberalisation, the foreign exchange market is driven by forces of demand and supply, hence forex rate fluctuations.

5(d) Managing interest rate risk;

Application of forward rate agreement (FRAs)

A forward rate agreement (FRA) is a binding contract (usually arranged over the counter with a bank) that fixes an interest rate for short-term lending/ investing or short-term borrowing for an interest rate period that begins at a future date. The dealer and end user agree on an interest rate (reference rate or benchmark rate e.g. CBR or LIBOR), a time interval and a hypothetical contract amount. The buyer agrees to pay the seller the increased interest cost on a notional amount if interest rates fall below an agreement rate; and the seller agrees to pay the buyer the increased interest cost if interest rates increase above the agreement rate.

For example, if WEL needs to borrow a certain amount in six months' time for a period of one year, it applies for a loan with Bank X at a variable rate of interest. WEL will be concerned that by the time the loan is drawn down, interest rates will be higher, hence increasing the effective cost of borrowing.

To mitigate this risk, WEL enters a separate agreement with another bank (Bank Y), called FRA at the spot rate. Bank Y will commit itself to paying compensation to WEL should interest rates rise above the reference rate. If in six months' time the spot one-year interest rate increases, WEL will be entitled to receive compensation equal to the difference between the rate agreed in the FRA and the spot rate.

So, any increase in the in interest cost above the spot rate is exactly matched by a compensating payment to WEL provided by the counterparty to the FRA (Bank Y).

However, if the interest rate falls below the rate stated in the FRA, WEL would benefit because of the lower rate charged by Bank X, but it (WEL) would suffer an equal off-setting compensation to the FRA counterparty (Bank Y). Using the FRA, WEL would have generated certainty over the effective cost of borrowing in future on the loans it borrows in the current period.

Application of Interest rate futures:

Interest rate futures are similar to FRAs except that their terms, amounts and periods are standardised. When using Interest rate futures, the company buys the entitlement to interest receipts or sells the promise to make interest payments. E.g. if WEL (as a lender) buys one 3 months' futures contract, it gets the right to receive interest for 3 months in the same currency.

When WEL (as a borrower) sells one 3 months' futures contract, it assumes an obligation to make interest payments for 3 months. Borrowers hedge against an interest rate rise by selling futures now and buying futures on the day that the interest rate is fixed. Lenders hedge against a fall in interest rates by buying futures now and selling futures on the date that the actual lending starts.

The basic principles behind futures contracts are that; the futures price will vary with changes in interest rates, and this acts as a hedge against adverse interest rate movements; and the outlay to buy futures is much less than for buying the financial instrument itself, and so WEL can hedge large exposures of cash with relatively small employment of cash.