

**MAY 2018 PROFESSIONAL EXAMINATIONS  
ADVANCED FINANCIAL MANAGEMENT (PAPER 3.3)  
QUESTIONS AND MARKING SCHEME**

**QUESTION ONE**

- a) There are many strategic reasons for Multinational Enterprise to undertake foreign direct investment (FDI) to stimulate economic activity in the host country.

**Required:**

Explain **TWO** strategic reasons for engaging in FDI.

**(2 marks)**

- b) Mbo Ltd needs to raise GH¢500,000 to finance a large scale project which would produce earnings of GH¢90,000 in perpetuity, but is undecided as to the manner in which the money should be raised.

The company has an issued capital of 2 million equity shares of GH¢1 each with a current market price of GH¢1.38 pesewas cum div. The annual dividend (which has been constant for many years) of GH¢360,000 is about to be paid.

Two methods of raising capital are being considered, a public issue, and a right issue at GH¢1.

**Required:**

Calculate:

- i) The price at which the public issue should be made, and **(5 marks)**  
ii) The price at which you would expect shares to be valued immediately after the rights issue. **(5 marks)**

- c) Paisley Brothers Limited, a company producing loud paisley shirts, has a net operating income of ¢20,000 and is faced with following three options of how to structure its debt and equity:

- i) To take no debt and pay shareholders a return of 9%;  
ii) Borrow ¢50,000 at 3% and pay shareholders an increased return of 10%;  
iii) Borrow ¢90,000 at 6% and pay a 13% return to shareholders.

Assuming no taxation and a 100% payout ratio,

**Required:**

Calculate the Weighted Average Cost of Capital for each of the options and determine which method is optimal. **(5 marks)**

- d) The market is currently yielding a return of 16% while Treasury bills are yielding 10%. Shares of Lime Spider Ltd have a covariance of 7.5 with the market while the market has a variance of 4.5.

**Required:**

Determine the required rate of return for Lime Spider Ltd's shares.

**(3 marks)**

**(Total: 20 marks)**

## QUESTION TWO

The Board of Peartek Ltd is considering the company's capital investment options for the coming year, and also evaluating the following potential investments:

### Investment A

This investment is similar to its current investments and requires an investment of GH¢60,000 now, GH¢40,000 for new capital equipment and GH¢20,000 for increases in working capital. This will be financed from Shareholders Funds. Sales next year would be 10,000 units, variable costs would be GH¢6 and the product would be sold for GH¢10. But due to entry of new competitors and technological improvements, the sales price would decline by 20% per annum thereafter, sales volume would fall by 10% and variable costs would fall by 20% per annum. Overheads attributed to the project would be GH¢15,000 per annum.

In year three the project would be wound up, working capital investment would be recovered and capital equipment sold off for 25% of its purchase costs the following year. Fixed costs include an annual charge of GH¢4,000 for depreciation.

### Investment B

This is a long-term project in a totally new area, involving an immediate outlay of GH¢90,000, which they intend to borrow from their lenders at 6%. They expect net profits of GH¢12,000 next year, rising thereafter by 3% per annum in perpetuity.

### Investment C

This is another long-term investment in a totally new area, involving an immediate outlay of GH¢25,000 which they intend financing by retained profits.

Expected annual net cash profits are as follows:

Years 1 to 4: GH¢3,000

Years 5 to 7: GH¢5,000

Year 8 onwards forever: GH¢7,000

The company discounts all projects lasting ten years duration or less at a cost of capital of 10% and all other projects at a cost of 13%. You may ignore taxation.

### Required:

- a) As a financial management analyst, you have been asked to advise the board of Peartek Ltd (in the form of a briefing report) which investment should be undertaken. In your report you are to make use of the NPV method, as the members of the board believe this is the best to use and have asked you to use it. **(15 marks)**
- b) Minority of board members feel that the Internal Rate of Return (IRR) should also be used as either an alternative or a complementary method of investment appraisal. Calculate the IRR of investments A and B (you may use 25% as the upper limit if you wish) and comment accordingly. **(5 marks)**

**(Total: 20 marks)**

### QUESTION THREE

- a) Expansion by organic growth or by acquisition should only be undertaken if it leads to an increase in the wealth of the Shareholders.

**Required:**

- i) Discuss **TWO strategic issues** that arise from pursuing growth through mergers and acquisitions. **(4 marks)**
- ii) Discuss **TWO strategic issues** that arise from pursuing growth through organic growth. **(4 marks)**

- b) Okumkom Ltd has a current price of GH¢ 2.20p per share and a price / earnings ratio of 15. At present it has 10 million, GH¢1.00 ordinary shares issued. Okumkom Ltd is considering the takeover of Dasco Ltd. The current price of each of Dasco's 4 million issued shares is 330p. Dasco's price/earnings ratio is 10. Okumkom Ltd expects to be able to purchase the shares at their current price and will pay for them with an issue of its own shares valued at their current price.

Okumkom Ltd wishes to know how many shares to offer for each of Dasco Ltd's shares, and the effect of the takeover on Okumkom Ltd's reported earnings per share and share price.

**Required:**

Evaluate the favourability of this takeover and comment on your computations.

**(12 marks)**

**(Total 20 marks)**

### QUESTION FOUR

- a) From the perspective of a corporate financial manager, explain and write short notes on the following:
- i) The **TWO** basic types of leases available and explain **FOUR** advantages of leasing.
- ii) The relationship between *working capital* and *profitability*.
- iii) Overtrading. Identify **THREE** of its *symptoms* and explain how it can be resolved.
- iv) Describe the *main features* of and explain the *main attractions* to the investor and to the issuer of convertible bonds.

**(10 marks)**

- b) UTFM Ltd is experiencing considerable financial difficulties. The management is prepared to undertake a buyout, and UTFM Ltd is considering selling the business for GH¢50 million. After an analysis of the company's performance, the management concluded that the company required a capital injection of GH¢30 million.

The management has agreed with a Venture Capitalist to raise the amount required for the buyout. The Venture Capitalist will provide GH¢8 million of the required funds at 10% interest, and provide equity of GH¢7 million. The fixed rate loan principal is repayable in

10 years' time. The management will provide the remaining required funding by way of equity.

Forecasts of Earnings before Interest and Tax (EBIT) for the next 5 years following the buyout are as follows:

	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>
	<b>GH¢'000</b>	<b>GH¢'000</b>	<b>GH¢'000</b>	<b>GH¢'000</b>	<b>GH¢'000</b>
EBIT	4,400	6,300	7,800	8,400	9,000

Corporation tax is charged at 25%. Dividends are expected not to be more than 10 % of profits for the first five years. Management has forecast that the value of equity capital is likely to increase by approximately 15 % per annum for the next 5 years.

**Required:**

On the basis of the above forecasts, determine whether management's estimate that the value of equity will increase by 15% per annum is a viable one. **(10 marks)**

**(Total: 20 marks)**

## QUESTION FIVE

- a) Recently, some multinational companies have suspended paying dividends. If, as some say, dividends are irrelevant, why have share prices plunged in most of these companies? In your answer outline both dividend policy theory and relevant examples. **(10 marks)**
- b) For an exporter, quoting in a foreign currency immediately produces an exchange exposure.

**Required:**

- i) Explain what is meant by "*exchange exposure*". **(2 marks)**
- ii) Two methods by which *pre-acceptance exposure* might be minimized. **(4 marks)**
- iii) Two methods of hedging against *post-acceptance exposure*, listing the advantages of each method. **(4 marks)**

**(Total: 20 marks)**

## SOLUTION TO QUESTIONS

### QUESTION ONE

#### a) Strategic reasons in engaging in FDI

Eiteman, Stonehill and Moffet (1992) in their book, *Multinational Business Finance*, set out five main strategic reasons for engaging in FDI, as follows:

##### i) Market Seeking

Such firms may be purely exporting to markets overseas or producing in foreign markets to meet local demand, overseas car manufacturers in Ghana and communication firms in Ghana are examples of market seekers.

##### ii) Raw material seeking

Firms in industries such as oil, mining, plantation and forestry will extract raw materials in the places where they can be found, whether for export or for further processing and sale in the host country.

##### iii) Production Efficiency seeking

Here firms locate production where one or more factors of production are cheap relative to their productivity. A common place example is the utilization of low cost labour in the Far East (Taiwan, Malaysia and Mexico)

##### iv) Knowledge seeking

Knowledge seeking firms choose to set up operations in countries in which they can gain access to technology or management expertise. Firms go to India mostly to tap into their technological prowess.

##### v) Political safety seekers

MNCs may seek countries in which there will be little political interference with foreign operations. More positively these countries may offer grants, tax concessions and protect the interest of the foreign firms in the country

**Most foreign direct investment is undertaken by firms and multinational corporations, who hope to benefit from some of these advantages:**

- Take advantage of lower labour costs in other countries (e.g. India is one of biggest recipients of FDI, where labour costs are much lower than in the OECD).
- Take advantage of proximity to raw materials rather than transport them around the world.
- Avoid tariff barriers and other non-tariff barriers to trade.
- Reduce transport costs. For example, by producing cars in the UK, Nissan has lower transport costs for selling to the UK market.
- Opportunities for using local knowledge to help tap into domestic markets. For example, by investing in a foreign country and working with local workers, a multinational can gain a better insight into what works well for local markets.

**(Any 2 points for 2 marks)**

**b) Calculation of cost of capital**

$$\text{Dividend per share} = \frac{\text{¢}360,000}{2,000,000} = \text{GH¢}0.18$$

$$\begin{aligned} \text{Ex-div market price} &= \text{GH¢}1.38 - \text{GH¢}0.18 \\ &= \frac{0.18}{1.2} \times 100 = \underline{15\%} \end{aligned}$$

$$\text{PV of earnings} = \frac{\text{GH¢}90,000}{0.15}$$

$$\begin{aligned} &= \text{¢}600,000 \\ \text{Less initial outlay} &= \underline{(500,000)} \\ \text{NPV} &= 100,000 \end{aligned}$$

**i) Price of a public issue**

$$\begin{aligned} \text{New market value} &= \text{old market value} + \text{NPV of project} \\ &= 1.2 \times 2,000,000 + 100,000 \\ &= \text{GH¢}2,500,000 \end{aligned}$$

$$\text{Price of issue} = \frac{\text{GH¢}2,500,000}{2,000,000} = \underline{\underline{\text{¢}1.25 \text{ per share}}}$$

**(5 marks)**

**ii) Price after a right issue**

$$\begin{aligned} \text{New market value} &= \text{old market value} + \text{NPV of project} + \text{capital raised.} \\ &= \text{GH¢}12 \times 2,000,000 + \text{GH¢}100,000 + \text{GH¢}500,000 \\ &= \text{GH¢}3,000,000 \end{aligned}$$

$$\text{Price after issue} = \frac{\text{GH¢}3,000,000}{2,000,000 + 500,000} = \underline{\underline{\text{GH¢}1.20 \text{ per share}}}$$

**(5 marks)**

**c)**

- i) Option (a). Income of GH¢20,000 is distributed to shareholders who require a return of nine per cent. The market value of equity is therefore  $20,000/0.09 = \text{GH¢}222,222$ . **(1 mark)**

ii) Option (b). Interest on debt of 50,000 × 3 per cent = GH¢1,500 is paid, so dividends to shareholders are 20,000 – 1,500 = GH¢18,500. Since the required return of shareholders is 10 per cent, the market value of equity is 18,500/0.10 = GH¢185,000. Since the market value of debt is ¢50,000, the total value of the company is 185,000 + 50,000 = **GH¢235,000.** (1.5 marks)

iii) Option (c). interest on debt of 90,000 × 6 per cent = ¢5,400 is paid, so dividends to shareholders are 20,000 – 540 = ¢14,600. Since the required return of shareholders is 13 per cent, the market value of equity is 14,600/0.13 = ¢112,308. As the market value debt is ¢90,000, the total value of the company is 112,308 + 90,000 = **GH¢202,308.**

(1 mark)

$$\text{WACC} = \frac{(0.13 * 112,308) + (0.06 * 90,000)}{112,308 + 90,000} * 100$$

$$= \frac{14,600 + 5,400}{202,308} * 100$$

$$= 9.9\%$$

(0.5 mark)

### Conclusion

The optimal capital structure is the capital structure with the lowest WACC and highest market value. This is option 2. (1 mark)

d)

$$R_m = 16 \text{ per cent} \quad R_f = 10 \text{ per cent} \quad \text{Cov}_{I_s} = 7.5 \quad \sigma_m^2 = 4.5$$

$$B_{I_s} = \text{Cov}_{I_s} / \sigma_m^2 = 7.5 / 4.5 = 1.67$$

$$E(R_{I_s}) = R_f + \beta_{I_s}(R_m - R_f) = 10 + (1.67 \times (16 - 10)) = 20 \text{ per cent}$$

The required rate of return on Lime Spider's shares is therefore 20 per cent.

(3 marks)

(Total: 20 marks)

## QUESTION TWO

### a) Report to Peartek Ltd.

Your answer should be in a report, properly addresses, dated and structured. Irrespective of how the projects are financed they should be discounted as per the company policy, i.e. all projects lasting ten years duration or less at a cost of 10% and all other projects at a cost of 13%.

The following NPV calculations should be included in the body or the main findings in the body with the following in the appendices:

#### INVESTMENT A

	0	1	2	3	4
Sales	-	100,000	72,000	51,480	-
Variable cost	-	(60,000)	(43,200)	(31,104)	-
Overheads	-	(11,000)	(11,000)	(11,000)	-
Capital Investments	(40,000)	-	-	-	10,000
Working Capital	<u>(20,000)</u>	<u>-</u>	<u>-</u>	<u>20,000</u>	<u>-</u>
Net Cash Flow	(60,000)	29,000	17,800	29,736	10,000
DF (10%)	<u>1.0</u>	<u>0.909</u>	<u>0.826</u>	<u>0.751</u>	<u>0.683</u>
PVs	<b>(60,000)</b>	<b>26,361</b>	<b>14,703</b>	<b>22,332</b>	<b>6,830</b>

**NPV = GH¢10,226**

#### Workings

	1	2	3
Sales in units	10,000	9,000	8,100
Selling price per unit	10	8	6.4
Variable cost per unit	6	4.8	3.84
Total sales value (GH¢)	100,000	72,000	51,840
Variable cost (GH¢)	60,000	43,200	31,104

#### INVESTMENT B

r = 13%

g = 3%

Costs = 

¢90,000
¢12,000

Yr1 =

NPV = PV Benefits - PV of Costs =

$$\text{PV Benefits} = \text{CFI} / (r - g) = 12,000 / (0.13 - 0.03) = \text{GH}\text{c}120,000$$

$$\text{NPV} = \text{c}120,000 - \text{c}90,000 = \text{c}30,000$$

**(3 marks)**

### INVESTMENT C

$$\text{NPV} = \text{PV Benefits} - \text{PV of Costs} =$$

$$\text{PV of c}7,000 \text{ per annum in perpetuity} = \text{CF}_t / r = 7,000 / 0.13 = \text{c}53,846.15$$

$$\text{Less PV of c}7,000 \text{ a years 1 to 7} \times \text{Discount Factor} = \text{c}7,000 \times 4.423 = \text{c}30,958.27$$

$$\text{Thus PV of c}7,000 \text{ a year from year 8 in perpetuity} = \text{c}53,846.15 - \text{c}30,958.27 = \text{c}22,887.88$$

The discount factor for years 1 to 7 when  $r = 13\%$  is 4.423

Less the discount factor for years 1 to 4 when  $r = 13\%$  is 2.974

Thus the discount factor for years 5 to 7 when  $r = 13\%$  is  $4.423 - 2.974 = 1.448$

Year	Net Cash Flow GHc	Discount factor	Present value GHc
0	-25,000	1	-25,000
1 to 4	3,000	2.974	8,922
5 to 7	5,000	1.448	7,240
8 +	7,000		22,888
NPV =			14,050

**(5 marks)**

As all projects have positive NPV's they should all be undertaken. On the basis of the NPV criteria project B has the greatest positive net present value, followed by A then C and all should be undertaken.

Since the NPV values depend crucially on the discount rate used, students should outline to the board of Peartek Ltd. the appropriateness of their choice of discount rates.

Students should also outline limitations associated with using the NPV method and ways to deal with these limitations. Limitations include how risky are the predicated

cash flows and hence what is the appropriate cost capital. Appropriate methods to deal with these include probability analysis and sensitivity analysis.

**(2 marks)**

b)

From the calculations below, the IRR of Investment A is approximately 23% while the IRR of Investment B is approximately 18.5%. Thus both meet the required return of projects as given by the board of Peartek Ltd. i.e. 10% for all projects lasting ten years duration or less and 13% for all other projects.

**INVESTMENT A**

	0	1	2	3	4
<b>Net Cash flow</b>	(60,000)	29,000	17,800	29,736	10,000
<b>DF (25%)</b>	1	0.800	0.640	0.512	0.410
<b>PV</b>	(60,000)	23,200	11,392	15,225	4,100

**NPV= -6,083**

$$IRR = A + \{(a / (a-b)) * B - A\}$$

i.e. at r = 10%, NPV = €10,226

i.e. at r = 25%. NPV = €-2,426.72

$$IRR = 10\% + \{(10,226 / (10,226 - -6,083)) * (25\% - 10\%)\}$$

$$10\% + \{(10,226 / 16,309) * (15\%)\}$$

$$10\% + \{(0.627) * (15\%)\}$$

$$10\% + \{0.094\}$$

$$10\% + 9.4\%$$

**19.4% approximately**

## INVESTMENT B

$$r = 13\%$$

$$g = 3\%$$

$$\text{Costs} = \boxed{\text{GH}\text{c}90,00}$$

$$\text{Yr 1} = \boxed{\text{GH}\text{c}12,00}$$

$$\text{NPV} = \text{PV Benefits} - \text{PV of Costs} =$$

$$\text{PV Benefits} = \text{CFI} / (r - g) = 12,000 / (0.13 - 0.03) = \text{c}120,000$$

$$\text{NPV} = \text{GH}\text{c}120,000 - 90,000 = \text{GH}\text{c}30,000$$

$$r = 25\%$$

$$g = 3\%$$

$$\text{Costs} = \boxed{\text{GH}\text{c}90,000}$$

$$\text{Yr 1} = \boxed{\text{GH}\text{c}12,000}$$

$$\text{NPV} = \text{PV Benefits} - \text{PV of Costs} =$$

$$\text{PV Benefits} = \text{CFI} / (r - g) = 12,000 / (0.25 - 0.03) = \text{c}54,545.45$$

$$\text{NPV} = \text{GH}\text{c}54,545.45 - 90,000.00 = -35,454.55$$

i.e. at  $r = 13\%$ ,  $\text{NPV} = \text{GH}\text{c}30,000$

i.e. at  $r = 25\%$ ,  $\text{NPV} = \text{c}-35,454.55$

$$\text{IRR} = 13\% + \{(30,000 / (30,000 - - 35,454.55)) * (25\% - 13\%)\}$$

$$13\% + \{(30,000 / (65,454.55)) * (12\%)\}$$

$$13\% + \{(0.458) * (12\%)\}$$

$$13\% + \{5.50\%\}$$

18.50% approximately

**(3 marks for calculations and 2 marks for comments = 5 marks in total).**

**(Total: 20 marks)**

### QUESTION THREE

a)

**A company pursuing a policy of growth through mergers and acquisitions should take account of the following strategic issues:**

- **Time** - mergers or acquisitions allows a firm to increase its market share or enter a new market more quickly than might be incurred if the firm tried to expand organically. As —time is money‖, the ability to enter a market or increase market share fast by mergers or acquisitions could be the cheapest way to expand.
- **Cost** - cost savings could be achieved by mergers or acquisitions due to synergy. Alternatively due to a —premium for control‖, acquisitions might be the most expensive way to expand. This may be particularly true if it is resisted by the directors of the target company or the government under the terms of competition legislation. However at least acquisitions can be made by means of share exchange unlike organic growth which requires funding in cash.
- **Regulation / legislation / culture - mergers or acquisitions** can allow for an easy entry into a market, particularly a foreign market where organic growth would be forbidden / restricted / meet local opposition. Alternatively organic growth is unlikely to result in referral to competition authorities while mergers or acquisitions often do. Similarly the customers / government may not appreciate the new (foreign) owners.
- **Assimilation** - Mergers and acquisitions can lead to quicker entry into a new market but it could also lead to problems of assimilating new employees and new operating systems. Likewise staff need to assimilate an increasing range of products, suppliers, customers and markets. This can lead to a large strain on staff at all levels but particularly management and lead to —corporate indigestion‖ mentioned earlier.
- **Strategy** - mergers and acquisitions will be most successful when they allow the strategic objectives of the firm to be achieved at a lower cost and / or faster than would they be by organic growth. Mergers and acquisitions are probably only desirable if organic growth alone cannot achieve the strategic objectives that a company has set itself. However their purpose should be to increase long term shareholder wealth and not just short term profits.

**(Any 2 points for 4 marks)**

- Organic growth involves a firm expanding its customer or product base using their own internal resources. Alternatively this can be achieved through acquisitions or mergers. Although both can have a similar result in terms of growth they can each have different strategic effects on the expanding firm. A company which is planning to grow must decide on whether to pursue a policy of organic growth or acquisitions or mergers, or a combination of the two. Irrespective of how it is achieved, growth especially when it is achieved by diversifying into new markets or into new products can cause strategic problems and lead to —corporate indigestion‖. This can be seen in terms of Customer Relation Management, (CRM), problems, an increase in human resources issues, —span of control‖ and decisions making issues, and in increase in alienation of stakeholders from each other.

**A company pursuing a policy of organic growth should take account of the following strategic issues:**

- **Optimal scale of production** - organic growth will allow the firm to choose the level of production it requires. Mergers and acquisitions are —lumpy|. The firm must absorb entire firms, with whatever level of production that entails and whatever resources they contain. The firm buys the head office functions of other companies and there will either be fewer economies of scale, or more redundancies.
- **Human resources** - organic growth will allow the firm to offer its original staff greater opportunities and responsibilities. Similarly where the firm does not have the required expertise within itself, targeted recruitment to select the best people can be used. In mergers and acquisitions the firm has little control over the number and skills of the staff of those businesses it absorbs.
- **Capital resources** - similar to human resources, capital resources can be used and obtained more efficiently with organic growth. The location of new outlets or offices for example can be most advantageously placed to maximise operational efficiency. In mergers and acquisitions the firm has little control over existing locations. This can lead to duplication and/or gaps in distribution networks for example
- **Cost** - how will resources to allow for the growth be obtained? Retained profits? New / additional equity? Increase in borrowing? How much can it afford? Is —over trading| a serious risk?

**(Any 2 points for 2 marks)**

**b)**

Number of shares of Dasco Limited	4,000,000
Price per share of Dasco Limited	¢3.30
Value of Dasco Limited $¢3.3 \times 4,000,000 =$	<b><u>GHC13,200,000</u></b>

**(1 mark)**

Number of shares to offer for Dasco Limited's shares:

$$\frac{¢13,200,000}{¢2.20} = 6,000,000 \text{ shares}$$

For each of Vasco Limited's shares, Okumkom Limited will offer:

$$\frac{¢6,000,000}{¢4,000,000} = 1.5$$

That is 3 shares to be issued for 2 shares in Dasco Limited.

Effect of the takeover on Okumkom Limited's EPS note  $P/E = 15$

$$\text{EPS of Okumkom Limited before takeover} \frac{2.20}{15} = \underline{14.67 \text{ p}}$$

Earnings of Okumkom Limited before takeover  
 $0.146 \times 10,000,000 \text{ shares}$

¢1,467,000

Earnings of Dasco Limited $\frac{330}{10} \times 4,000,000$	<u>¢1,320,000</u>
Combined earnings after takeover	<u>¢2,787,000</u> <b>(4 marks)</b>

Shares of Okumkom Limited before takeover	10,000,000
Shares issued to Dasco Limited's shareholders	<u>6,000,000</u>
Total number of shares after takeover	<u><b>16,000,000</b></u>
EPS after takeover $\frac{2,787,000}{16,000,000} = 17.4$ p	

Share price of Okumkom Limited after takeover

P/E = 15

Price = 15 x 0.174<sup>1</sup> = 261p

**(3 marks)**

**Comments**

The takeover has been considerably favourable to Okumkom Limited because it has an improved Earnings Per Share as well as an enhanced share price by 2.73p and 41p respectively. The takeover has not been favourable to the shareholders of Dasco Limited in terms of the reduction in their EPS by 15.6p which is very substantial and also a reduction in the share price. The number of shares allotted to them might however compensate for the reduction as shown below.

Now, suppose a shareholder has 1,000 shares in Dasco Limited, the effect:

	<b>GH¢</b>
Value in Dasco Limited before 1,000 x ¢3.30	3,300
Value after takeover 1,500 x GH¢ 2.61	<u>3,915</u>
Increase in value	<u>615</u>

The shareholder will gain GH¢615 in value of his investment by the takeover.

The shareholders of Okumkom Ltd would suffer a dilution of control as a result of the takeover. They would be conceding 37.5% of their control to the shareholders of Dasco Ltd.

**(4 marks)**

**(Total: 20 marks)**

## QUESTION FOUR

a)

- i) **The two basic types of leases available to a business are operating leases and financial leases.**

**An operating lease** is typically a contractual arrangement whereby the lessee agrees to make periodic payments to the lessor, often for five years or less, to obtain an asset's services. The lessee generally receives an option to cancel the lease by paying a cancellation fee.

**A financial (or capital) lease** is longer term than an operating lease. Financial leases are non-cancellable and therefore obligate the lessee to make payments over a predefined period.

**(1 mark)**

**The advantages of leasing are**

- the ability of the lessee to depreciate land, which is prohibited if the land were purchased,
- the use of sale-leaseback arrangements may permit the firm to increase its liquidity by converting an asset into cash, which can then be used as working capital,
- leasing provides 100 percent financing,
- the maximum claim of lessors if a lessee becomes bankrupt is three years of lease payments along with reclaiming the asset,
- the lessee may avoid the cost of obsolescence if the lessor fails to accurately anticipate the obsolescence of assets and sets the lease payment too low,
- the lessee avoids many of the restrictive covenants that are usually included as part of a long term loan, and in the case of low-cost assets leasing may provide the firm with needed financing flexibility.

**(Any 4 points @ 0.5 = 2 marks)**

ii) **Relationship between working capital and profitability**

- It is very possible if not probable that as working capital in a firm increase so does profit. This is because the level of working capital: stocks, debtors and creditors should follow the level of business which in turn should be generating profits. As a business expands in terms of fixed assets it will usually require additional working capital too. Also as profit increases it allows working capital to be increased too.
- However it is not working capital per se that generates profits or profits that generates working capital. What is important is how and in what proportions working capital is used. A company needs to exercise control over working capital. Particularly when credit markets are tight, a company's liquidity is as important as its profitability. Changes in working capital will usually change a company's liquidity.
- Depending on the nature of a business, its working capital requirements will be different. Unlike a typical service company, a manufacturing company may need substantial levels of stocks. It may also have high levels of debtors and creditors as well. However a decision to use "Just In Time" methods of production, if

implemented successfully, could result in lower levels of stocks. Also producing in smaller batches could result in the reduction of finished goods.

- Therefore it is not necessary to have higher working capital to have higher profits. In fact in companies with loose financial management that carry high stocks and are too generous with giving credit while not taking advantage of credit available for them will not be as profitable as ones that are more tightly managed.

**(Any 2 points for 2 marks)**

- **Overtrading** refers to a situation where turnover is increased without a matching increase in equity or other long-term sources of funds; as a result, a company which can be earning good profits can run into a liquidity crisis and default in payment of its current liabilities. The company is unable to finance the level of operations which it has achieved. Further business growth increases the pressure upon working capital. A major cause of overtrading is where a company considerably increases its sales by offering generous credit terms without obtaining any equivalent credit terms from its own creditors. The company may try to obtain further short term finance by borrowing or non-payment of its own creditors which can quickly lead to considerable financial distress or even liquidation. **(1 mark)**

**Companies experiencing overtrading might notice the following symptoms;**

- The increased investment in current assets needed to support the increased sales are financed mainly from short-term sources like creditors and bank overdraft, resulting in a declining current ratio and quick ratio.
- Sales tend to increase very quickly in relation to equity, resulting in sharp increases in the ratio of sales to equity.
- The increase in debt would lead to higher gearing ratios
- The net working capital will tend to decline, and may even become negative. A negative net working capital implies a current ratio less than unity (current assets less than current liabilities), and a business in such a position is likely to face considerable difficulty in meeting its current liabilities.
- Even where the current ratio is satisfactory, any erosion of net working capital would worsen the liquidity of the business and make it more vulnerable to cyclical risk.

**(Any 2 points @ 0.5 = 1 mark)**

**Solving Overtrading**

- The instant solution to overtrading is to take more trade credit and bank overdraft finance. However this is likely to be only a short-term fix that ultimately exacerbates the situation and worsens the liquidity crisis.
- Better short-term solutions would be to either restrict the growth in turnover to manageable proportions
- or improve working capital management so that the investment in current assets required to support the level of sales is reduced (i.e. better inventory control, credit policy and debt collection).

- The long-term solution is to provide more long-term funds for working capital purposes - i.e. improve the Net Working Capital position of the firm.

**(Any 2 points @ 0.5 = 1 mark)**

#### **iv) Features of Convertible bonds**

- Convertible bonds are fixed return securities that may be converted into ordinary shares of a company at pre-determined date(s) and at a pre-determined rate at the option of the holder. Often the terms of the conversion may seem to be less attractive at conversion dates further away. This reflects expected share price growth.
- At the conversion date or dates, the holder has the option to convert the stock into ordinary shares or continue to hold the stock and earn the fixed interest until the bond matures. However, if the investor decides to convert the bond into ordinary shares, they cannot convert the ordinary shares back into the original fixed security.
- The conversion premium is the difference between the nominal issue value of the bonds and the conversion value at the date of issue. From the issuers viewpoint the larger the conversion premium the better as less shares need be issued for a given amount of capital raised.
- However to be acceptable and valuable to investors the premium must reflect the growth prospects of the issuers ordinary share price.

**(Any 2 points @ 0.5 = 1 mark)**

#### **Attractions of convertible bonds to the investor and issuer:**

- The price of the convertible bond in effect includes an option to buy the ordinary shares.
- The potential value of the conversion rights.
- Interest income which would not be received if the investor simply bought a call option on the shares.
- The interest cost to the company is lower than for conventional, non-convertible stock.
- Most issuers expect the bonds to be converted and hence view them as delayed equity.
- Thus EPS is not immediately affected as it would with the issue of ordinary shares.
- If bond is converted into equity then this removes the necessity to raise funds to redeem the initial loan stock

**(Any 2 points @ 0.5 = 1 mark)**

b) In order to estimate the change in the value of equity, we can use forecast retained earnings figures, assuming dividends to be at the maximum 12 % level:

**(All figures are in GH¢'000)**

	0	1	2	3	4	5
EBIT -		4,400	6,300	7,800	8,400	9,000
10% interest -		800	800	800	800	800
Earnings before tax -		3,600	5,500	7,000	7,600	8,200
Tax (25%) -		900	1,350	1,750	1,900	2,300
Earnings after tax -		2,700	4,125	5,250	5,700	6,150
Dividend (10%) -		270	413	525	570	615
Retained earnings -		2,430	3,713	4,725	5,130	5,535
<b>Equity @ start</b>	<b>22,000</b>	<b>22,000</b>	<b>24,430</b>	<b>28,143</b>	<b>32,868</b>	<b>37,998</b>
<b>Equity @ close</b>	<b>22,000</b>	<b>24,430</b>	<b>28,143</b>	<b>32,868</b>	<b>37,998</b>	<b>43,533</b>

$$\text{Compound growth rate of equity} = \sqrt[5]{\frac{\text{Equity in Year Five}}{\text{Beginning Equity}}} - 1$$

$$\sqrt[5]{\frac{43,533}{22,000}} - 1$$

14.60%

(10 marks)

(Total: 20 marks)

## QUESTION FIVE

a)

### Theories of Dividend Policy

#### 1. Residual theory

The essence of the residual theory of dividend policy is that the firm will only pay dividends from residual earnings, that is, from earnings left over after all suitable (positive NPV) investment opportunities have been financed.

Using this approach, the firm would treat the dividend decision in three steps, as follows:

Step 1: Determine its optimal level of capital expenditures for the year or period under review.

Step 2: Using the optimal capital structure prepositions, estimate the total amount of equity financing needed to support the expenditures generated in step 1.

Step 3: Because the cost of retained earnings,  $k_r$ , is less than the cost of new company ordinary shares,  $k_e$ , use retained earnings to meet the equity requirement determined in step 2. If retained earnings are inadequate to meet this need, sell new ordinary share. If the available retained earnings are in excess of this need, distribute the surplus amount, the residual, as dividends.

With the residual dividend policy, the primary focus of the firm's management is indeed on investment, not dividends. Dividend policy becomes irrelevant, it is treated as a passive rather than an active, decision variables. The view of management in this case is that the value of the firm and the wealth of its shareholders will be maximised by investing the earnings in the appropriate investment projects, rather than paying out as dividends to shareholders.

Dividends will only be paid when retained earnings exceed the funds required to finance the suitable investments projects. Conversely, when the total investment funds required exceed retained earnings, no dividend will be paid.

#### 2. Irrelevancy theory

The effect of dividends on market price per share has been a controversial one for many years. In 1961, Modigliani and Miller (MM) published an important article dealing with dividends and their effect on shareholders' wealth. The whole divided irrelevance school originated with this publication.

MM argued that share valuation is a function of the level of corporate earnings, which reflects a company's investment policy, rather than a function of the proportion of a company's earnings paid out as dividends.

MM further argued that, given the irrelevance of a company's capital structure, investment decisions were responsible for a company's future profitability and hence the only decisions determining its market value.

MM then concluded that share valuation is independent of the level of dividend paid by a company.

MM's argument of dividend irrelevance is based on their concept of homemade dividends. Assume, for example, that you are a shareholder and you don't like the firm's dividend policy. If the firm's cash dividend is too big, you can just take the excess cash received and use it to buy more of the firm's share. If the cash dividend you received was too small, you can just sell a little bit of your share in the firm to get the cash flow you want. In either case, the combination of the value of your investment in the firm and your cash in hand will be the same.

### 3. Dividend Relevance (Traditional view of dividend decisions)

Obviously, the assumptions made by MM are unrealistic. In the real world, investors might prefer one dividend policy over another. If so, a firm's dividend policy is relevant. According to the dividend relevance theory, then, dividend policy can affect the value of a firm through investors' preferences.

One of MM's assumptions that have been hotly debated is that dividend policy does not affect investor's required rate of return on equity,  $K_e$ . For example, Myron Gordon and John Lintner argued that investors prefer to receive dividends 'today' because current dividend payments are more certain than the future capital gains that might result from investing retained earnings in growth opportunities, so  $K_e$  should decrease as the dividend payout is increased. In effect Gordon and Lintner said that investors value a cedi of expected dividends more highly than a cedi of expected capital gains because the dividend yield component,

$\frac{d}{P_0}$  is less risky than the capital gains component,  $g$ , in the total expected return equation

$$K_e = \frac{d(1+g)}{P_0} + g$$

Some arguments have been put forward to indicate that payment of dividend is relevant to the investors. These are now considered in turn.

#### 1. Signaling effect (Information Content)

Dividend signaling - an increase in dividends would signal greater confidence in the future by managers and would lead investors to increase their estimate of future earnings and cause a rise in the share price.

The relevance of dividend is based on the premise that the mere payment of dividends imparts certain information to shareholders, known as the information content of dividend theory. This idea implies that dividends have an impact on share prices because they communicate information to investors about the firm's profitability. An increase in the dividend rate, for example, says favourable things

about the future outlook of the company. It has been suggested that implicit in the MM dividend irrelevance argument is this assumption that the market knows a company's expected return stream exactly and discount this stream to determine the value of the firm. Advocates of information content argue that what is really valued in the marketplace is the perceived return stream. If this is the case, then changes in dividend policy will alter the market's perception about the firm and therefore affect the valuation process.

This argument implies that dividend policy is relevant. Firms should attempt to adopt a stable (and rising) dividend payout to maintain investors' confidence.

## 2. Preference for current income (bird in the hand)

Lintner and Gordon argued that dividends are preferred to capital gains due to their certainty. This is often referred to as the bird in the hand argument and means that an investor will prefer to receive a certain dividend payment now rather than leaving the equivalent amount in an investment whose future value is uncertain. Current dividends, in this analysis, represent a more reliable return than future capital gains.

When MM concludes that dividends are irrelevant, they mean that investors don't care about the firm's dividend policy since they can create their own. If they don't care, the firm's dividend policy will not affect the firm's share price and, consequently, dividend policy will not affect the firm's required rate of return on equity capital ( $K_e$ ). Myron Gordon and John Lintner, however, argue that  $K_e$  decreases as the dividend pay-out increases. Why? Because investors are less certain of receiving future capital gains from the reinvested retained earnings than they are of receiving current (and therefore certain) dividend payments. The main argument of Gordon and Lintner is that investors place a higher value on a cedi of dividends that they are certain to receive than on a cedi of expected capital gains. They base this argument on the fact that, when measuring total return, the dividend yield component,  $d/p_0$ , has less risk than the growth component  $g$ .

If dividends are preferred to capital gains by investors, dividend policy has a vital role in determining the market value of a company. Companies that pay out low dividends may experience a fall in share price as investors exchange their shares for those of a different company with a more generous dividend policy.

## 3. Clientele effect

It has been suggested that investors are not indifferent as to whether they receive dividends or capital gains. Preferences for one or the other can arise for two main reasons.

Some shareholders require dividends as a source of regular income. This is true of small shareholders such as pensioners and institutional investors such as pension funds and insurance companies. These institutions have regular liabilities to meet.

This need is balanced by stock exchange dealers, who over a small holding period prefer capital gains to dividends payment.

Preferences for dividends or capital gains due to their different tax treatment. A key premise of the irrelevance argument is that investors are indifferent as to whether they receive their return in dividend income or share appreciation. In the absence of personal taxes, this premise is reasonable. However, once differential personal taxes are considered, there may well be a preference for long-term capital gains, since they are taxed at lower rates than cash dividends. Moreover, the tax on capital gains are deferred until an investor actually disposes of the shares. Thus, once personal taxes are considered, it follows that for a given level of risk, investors will require a higher total return on a security the larger the proportion of its return attributable to dividends, since dividends are subject to a higher rate than long-term capital gains.

The existence of preference for either dividends or capital gains means that investors will be attracted to companies whose dividends policies meet their requirements. Each firm will therefore build up a clientele of shareholders who are satisfied by its dividend policy. The implication for a company is that a significant change in its dividend policy could give rise to dissatisfaction among its shareholders, resulting in downward pressure on its share price.

#### **4. Free cash flow Hypothesis**

If it is the intent of the financial manager to maximise the value of the firm, then investors should prefer that a firm pay dividends only if acceptable capital budgeting opportunities do not exist. We know that acceptable capital budgeting projects increase the value of the firm. We also know that, because flotation costs are incurred when issuing new shares, it costs a firm more to raise funds using new ordinary shares than it does using retained earnings. So, to maximise value, where possible, a firm should use retained earnings rather than issue new ordinary shares to finance capital budgeting projects. Thus, dividends should be paid only when free cash flows in excess of capital budgeting needs exist. If management does otherwise, the firm's value will not be maximised.

According to the free cash flow hypothesis, the firm should distribute any earnings that cannot be reinvested at a rate at least as great as the investor's required rate of return. Everything else equal, firms that retain free cash flows will have lower values than firms that distribute free cash flows, because the firms that retain free cash flows actually decrease investors wealth by investing in projects with  $IRR < K_e$ .

The free cash flow hypothesis might help to explain why investors react differently to identical dividend changes made by similar firms. For example, a firm's share price will not change dramatically if it reduces its dividend for the purpose of investing in capital budgeting projects with positive NPVs. On the other hand, a company that reduces its dividend simply to increase free cash flows will experience a significant decline in the market value of its shares, because the dividend reduction is not in the best interests of the shareholders. Thus, the free cash flow hypothesis

suggests the dividend policy can provide information about the firm's behaviour with respect to wealth maximization

## 5. Tax aversion

In many countries, dividends have historically been taxed at higher rates than capital gains. In the 1970s, U.S. tax rates on dividend income were as high as 70%, while the taxes on capital gains were 35%. In the late 1990s, the rates were much lower, but the same general relationship was still in place. Dividends were taxed as ordinary income with rates as high as 39.1 %, while long-term capital gains were taxed at 20%. This situation is currently similar in Ghana. Dividends are taxed at 10% whereas capital gains from the sale of share from the stock exchange market are zero.

Under such a situation, according to the tax-aversion theory, investors will prefer to not receive dividends due to their higher tax rates. Taken to the extreme, the tax-aversion theory implies that investors would want companies to have a zero-dividend pay-out ratio so that they will not be burdened with higher tax rates. In the real world, tax laws often prevent companies from accumulating excess earnings, making dividend payments necessary.

The results of empirical tests are unclear as to which of these theories best explains the empirical observations of dividend policy. Research suggests that higher tax rates do result in lower dividend pay-outs. There is empirical support for the "bird-in-the-hand" theory as some companies that pay dividends are perceived as less risky and specific groups of investors do prefer dividend paying stocks. MM counter this argument by saying that different dividend policies appeal to different clienteles, and that since all types of clients are active in the marketplace, dividend policy has no effect on company value if all clienteles are satisfied.

**(5 points at 2 marks each = 10 marks)**

**b)**

**i) 'Exchange exposure'** relates to the vulnerability of a company to risk arising from changes in the rate of exchange of a foreign currency is facing transaction exposure because he is vulnerable to adverse movements in the rate of exchange of the foreign currency.

**(2 marks)**

**ii) 'Pre-acceptance exposure'** refers to risks arising in the period between the date of the exporters quote and the date on which the content is accepted.

**Pre-acceptance exposure can be minimized by:**

- Setting a short time limit within which the contract must be accepted ; or
- Buying a forward option to sell the foreign currency forward.

**(2 points for 4 marks)**

**iii) 'Post-acceptance exposure'** refers to risks arising in the period between the date of the exporters quote and the date on which the contract is accepted and the date on which the foreign purchaser sends the foreign currency to the exporter.

**Post-acceptance exposure can be minimized by;**

- Borrowing the foreign currency now, to be repaid out of the sales proceeds when they arrive. The advantages are cheapness and simplicity ;  
**(1 mark for method, 1 mark for advantage)**

**OR**

- Selling the foreign currency forward. The advantage is the certainty of the amount of cedis to be received, without committing cedis resources at the outset.  
**(1 mark for method, 1 mark for advantage)**

**(Total: 20 marks)**