kasneb

**CPA PART III SECTION 5**

**ADVANCED FINANCIAL MANAGEMENT**

**WEDNESDAY: 27 November 2019.** **Time Allowed: 3 hours.**

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

**QUESTION ONE**

(a) (i) Distinguish between "insolvency" and "bankruptcy" as used in business restructuring. (2 marks)

(ii) Highlight four causes of business failure. (4 marks)

(b) Sunny Technologies Ltd. is considering investing Sh.50 million in a new machine to manufacture computer micro chips with an expected useful life of 5 years and no salvage value. It is expected that 20 million units of micro chips will be sold each year at Sh.3.00 per unit. Variable production costs are expected to be Sh.1.65 per unit, while incremental fixed costs will be Sh.10 million per annum.

The cost of capital is 12%.

**Required:**
Evaluate the sensitivity of the project's net present value (NPV) to the following changes:

(i) Sales volume. (3 marks)

(ii) Sales price. (3 marks)

(iii) Variable costs. (3 marks)

(c) Further analysis of the company in (b) above suggests that sales volumes could depend on expected economic state as follows:

| **Economic state** | **Poor** | **Normal** | **Good** |
|---|---|---|---|
| Probability | 0.30 | 0.60 | 0.10 |
| Annual sales volume (units) | 17,500,000 | 20,000,000 | 22,500,000 |

**Required**
The expected net present value (NPV) of the project using scenario analysis. (5 marks)

**(Total: 20 marks)**

**QUESTION TWO**

(a) Kanga Limited is considering the design of a new conveyor system. The management must choose among the following three alternative courses of action:

**Option 1**
The firm could sell the design outright to another corporation with payments over 2 years.

**Option 2**
The firm could license the design to another manufacturer for a period of 5 years which is likely to be the product life cycle of the conveyor system.

**Option 3**
The company could manufacture and market the system itself. This alternative will result in 6 years of cash inflows.



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Cash flows associated with each alternative are as shown below:

| **Alternative** | **Sell** | **License** | **Manufacture** |
|---|---|---|---|
| Initial investment, $I_o$ (Sh.) | 400,000 | 400 000 | 900,000 |
| **Year** | | **Cash inflows (Sh.)** | |
| 1 | 400,000 | 500,000 | 400,000 |
| 2 | 500,000 | 200,000 | 500,000 |
| 3 | - | 160,000 | 400,000 |
| 4 | - | 120,000 | 400,000 |
| 5 | - | 80,000 | 400,000 |
| 6 | - | - | 400,000 |

The company has a cost of capital of 12%.

**Required:**
Advise Kanga Limited on the best alternative based on:

(i) Net present value (NPV) approach. (3 marks)

(ii) Annualised net present value (ANPV) approach. (3 marks)

(iii) Compare and contrast your results obtained in (a) (i) and (ii) above. (2 marks)

(b) The finance director of Babito Ltd. wishes to determine the company's optimal capital structure. The cost of debt varies according to the level of gearing of the company as follows:

| **Percentage debt (%)** | **Pre-tax cost of debt (%)** |
|---|---|
| 10 | 6.5 |
| 20 | 7.1 |
| 30 | 7.8 |
| 40 | 8.5 |
| 50 | 10 |
| 60 | 12 |
| 70 | 15 |

**Additional information:**
1. The company's ungeared equity beta is 0.85.
2. The risk-free interest rate is 6%.
3. The market return is 14%.
4. Corporate tax rate is 30%.

**Required:**
Advise the company on the optimal weighted average cost of capital (WACC). (12 marks)
**(Total: 20 marks)**

**QUESTION THREE**

(a) Summarise five functions of the International Monetary Fund (IMF). (5 marks)

(b) Duncan Kipchumba has an investment capital of Sh.1,000,000. He wishes to invest the fund in two securities, X and Y in the following proportion; Sh.200,000 in security X and Sh.800,000 in security Y.

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

| **State of economy** | **Probability** | **Returns on security X** | **Returns on security Y** |
|---|---|---|---|
| Boom | 0.40 | 18% | 24% |
| Normal | 0.50 | 14% | 22% |
| Recession | 0.10 | 12% | 21% |

**Required:**
(i) The expected return on the portfolio. (3 marks)

(ii) The correlation coefficient between security X and security Y. (4 marks)



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(iii) The portfolio risk. (2 marks)

(iv) The reduction in risk due to portfolio diversification. (2 marks)

(c) Job Ochieng, an investor, believes that there are three important factors that determine the expected return for a particular common stock. Job uses the following factor betas and factor risk premiums:

| Factor | Factor beta | Factor risk premium |
|---|---|---|
| 1 | 0.70 | 2.5% |
| 2 | 1.20 | 5.0% |
| 3 | – 0.10 | 6.0% |

The risk-free rate is 5%.

**Required:**

(i) The expected return for the stock using the arbitrage pricing theory (APT) model. (2 marks)

(ii) Explain two differences between capital asset pricing model (CAPM) and arbitrage pricing theory (APT) model. (2 marks)

**(Total: 20 marks)**

**QUESTION FOUR**

(a) Distinguish between the following terms as used in the context of derivatives market:

(i) "Currency option" and "currency swap". (2 marks)

(ii) "Interest rate swap" and "interest rate collar". (2 marks)

(iii) "Hedgers" and speculators". (2 marks)

(b) Property A and property B are categorised under the real estate category. Property A is all equity financed while property B is financed partly using debt and partly by equity finance.

Both properties generated operating profit (EBIT) of Sh.41,245,900 annually. This is expected to remain constant each year in perpetuity. Unlike property A which is wholly equity financed, property B is financed partly by equity and partly by 10% debt of Sh.215,000,000.

The cost of equity is 12% for both properties and there are no corporation taxes. Each unit of debt is trading at par.

**Required:**

The current value of each property using the Net Income (NI) approach. (4 marks)

(c) Smoothdrive Ltd., a motor vehicle assembly company issued a 10 year, 16%, Sh.100 million par value bond five years ago. The bond was issued at 2% discount and issuing costs amounted to Sh.2 million.

Due to the decline in Treasury bill rates in the recent past, interest rates in the money market have been falling presenting favourable opportunities for refinancing. A financial analyst engaged by the company to assess the possibility of refinancing the debt reports that a new Sh.100 million par value, 12%, 5-year bond could be issued by the company. Issuing costs for the new bond will be 5% of the par value and a discount of 3% will have to be given to attract investors.

The old bond can be redeemed at 10% premium and in addition, two months interest penalty will have to be paid on redemption. All bond issue expenses (including the interest penalty) are amortised on a straight-line basis over the life of the bond and are allowable for corporate tax purposes.

The applicable corporate tax rate is 40% and the after tax cost of debt to the company is approximately 7%.

**Required:**

(i) The initial investment required to issue the new bond. (4 marks)

(ii) Annual cash flow savings (if any) expected from the bond refinancing decision. (4 marks)

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(iii) The net present value (NPV) of the refinancing decision. (1 mark)

(iv) Advise the company on whether to refinance the bond based on your results in (c) (iii) above. (1 mark)

**(Total: 20 marks)**

**QUESTION FIVE**

(a) Briefly describe the following types of mergers:

(i) Horizontal. (1 mark)

(ii) Vertical. (1 mark)

(iii) Congeneric. (1 mark)

(iv) Conglomerate. (1 mark)

(b) A Ltd. and B Ltd. are companies operating in the same line of business. In the past few years, A Ltd. has experienced stiff competition from B Ltd. to an extent that A Ltd. is now contemplating acquiring B Ltd. in order to consolidate its market share.

The following financial data is available about the two companies:

| | **A Ltd.** | **B Ltd.** |
|---|---|---|
| Annual sales (Sh. million) | 400 | 60 |
| Net income (Sh. million) | 40 | 9 |
| Ordinary shares outstanding (million) | 10 | 3 |
| Earnings per share (EPS) | Sh.4.0 | Sh.3.0 |
| Market price per share (MPS) | Sh.60 | Sh.30 |

Both companies are in the 30% income tax bracket.

**Required:**

(i) The maximum exchange ratio that A Ltd. should agree to assuming that it does not expect dilution in its post acquisition earnings per share (EPS). (2 marks)

(ii) The total premium the shareholders of B Ltd. would agree to receive at the exchange ratio in (b) (i) above. (2 marks)

(iii) A Ltd.'s post acquisition earnings per share (EPS) assuming that the two companies agree on an offer price of Sh.30. (2 marks)

(iv) A Ltd.'s post acquisition earnings per share (EPS) assuming that for every 100 ordinary shares of B Ltd., the shareholders are offered two, 12 % debentures of Sh.500 par value. (3 marks)

(c) Twiga Limited has 500,000 ordinary shares trading at Sh.150 each in the Securities Exchange.

**Additional information:**

1. The dividend payable in one year period is Sh.3 per share.
2. An investment opportunity worth Sh.25 million is to be undertaken. The profit to be earned is Sh.15 million.
3. The cost of capital for the company is 10%.

**Required:**

Using Modigliani and Miller approach, show that the payment of dividends does not affect the value of the firm. (7 marks)

**(Total: 20 marks)**

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

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

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

* The factor is zero to four decimal places

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

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

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

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**CPA PART III SECTION 5**

**ADVANCED FINANCIAL MANAGEMENT**

**THURSDAY: 23 May 2019.** **Time Allowed: 3 hours.**

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

**QUESTION ONE**

(a) Discuss four applications of the capital asset pricing model (CAPM). (8 marks)

(b) Dzikunze Manufacturing Limited is considering to raise an extra Sh.10 million in order to finance an expansion programme.

The company's current capital structure is given as follows:

| | **Sh. "000"** |
|---|---|
| Ordinary share capital (Sh.20 par value) | 50,000 |
| Reserves | 20,000 |
| 14% debenture capital | 20,000 |
| 10% preference share capital | 10,000 |
| | 100,000 |

**Additional information:**

1. The company is considering raising the funds using two alternative financing options namely:

   **Option I:**

   To raise all the funds through the issue of new ordinary shares at par.

   **Option II:**

   To raise half of the funds through the issue of new ordinary shares at par and the balance through the issue of new 12% debentures at par.

2. The corporation tax rate is 30%.

**Required:**

(i) Earnings before interest and tax (EBIT) at the point of indifference in company's earnings for each financing option. (8 marks)

(ii) Earnings per share (EPS) at the point of indifference in (b) (i) above. (4 marks)

**(Total: 20 marks)**

**QUESTION TWO**

(a) The Unclaimed Financial Assets Authority (UFAA) was created under the Unclaimed Financial Assets Act, No.40 of 2011 to administer unclaimed financial assets.

**Required:**

With reference to the above statement, summarise six specific roles of the Unclaimed Financial Assets Authority or equivalent authority in your country. (6 marks)

(b) ABC Ltd. is a company listed in the local securities exchange. The company is foreseeing a growth rate of 12% per annum in the next two years. The growth rate is likely to be 10% per annum for the third and fourth year, then it will stabilise at 8% per annum in perpetuity.

The latest dividend to be paid was Sh.1.50 per share.

The required rate of return is 16%.

**Required:**

The intrinsic value of the share. (4 marks)

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(c) Umoja Group of companies belongs to a risk class of which the appropriate capitalisation rate is 10%.

The company currently has in issue 200,000 ordinary shares selling at Sh.50 each. The company is contemplating the declaration of dividend at the rate of Sh.3 per share at the end of the current financial year which has just begun.

**Required:**
Using Modigliani and Miller proposition on dividend irrelevance, determine:

(i) The price of the ordinary shares at the end of the year, assuming a dividend is not declared. (2 marks)

(ii) The price of the ordinary shares at the end of the year, assuming a dividend is declared. (2 marks)

(iii) Assuming that the company generates a net income of Sh.2,000,000 and makes new investments of Sh.4,000,000 during the period.

Show that under the Modigliani and Miller's assumption, payment or non-payment of dividends has no effect on the company's value. (6 marks)

**(Total: 20 marks)**

**QUESTION THREE**

(a) Discuss four types of risks associated with investment in real estate investment trust (REITs) securities. (8 marks)

(b) Zomolo Limited is a firm operating in the manufacturing industry. The firm's current capital structure is given as follows:

| | **Sh. "000"** |
|---|---|
| Ordinary share capital (Sh.10 par value) | 80,000 |
| Reserves | 20,000 |
| 10% irredeemable debenture capital (Sh.100 par value) | 30,000 |
| 8% preference share capital (Sh.20 par value) | 20,000 |
| | 150,000 |

**Additional information:**

1. The current market price per share (MPS) of the firm's ordinary shares is Sh. 34.80 cum-dividend.
2. The firm adopts a 60% dividend payout ratio.
3. The most recent earnings per share (EPS) of the firm is Sh.8.00.
4. The historical dividend per share (DPS) over the last four years are given as follows:

| **Year** | **Dividend per share (DPS) (Sh.)** |
|---|---|
| 2015 | 4.00 |
| 2016 | 4.20 |
| 2017 | 4.50 |
| 2018 | 4.80 |

5. The firm's management is contemplating to invest in a project which would cost Sh.40 million. The project is expected to generate Sh.9 million each year in perpetuity.
6. The project has an estimated beta of 1.50.
7. The return from a well diversified market portfolio is 18%.
8. The debentures are considered to be risk-free and are valued at par.
9. The existing 8% irredeemable preference shares are currently trading at Sh.25 each.
10. The corporation tax rate is 30%.

**Required:**

(i) The firm's return on equity (ROE) using Gordon's growth approximation method. (3 marks)

(ii) The firm's existing weighted average cost of capital (WACC). (6 marks)

(iii) The project's risk adjusted discounting rate (RADR). (3 marks)

**(Total: 20 marks)**

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**QUESTION FOUR**

(a) Kadzenga Limited is a Kenyan company with a substantial proportion of its trade with companies in the United States (US). Kadzenga Ltd. invoiced a US firm 60,000 United States Dollars (USD) receivable 3 months from now.

**Additional information:**

1. The borrowing rate is 3% above the bank base rate while the investing rate is 2% below the bank base rate. These rates apply both in Kenya and the United States.
2. The bank base rates in Kenya and the US are 15% and 10% per annum respectively.
3. The exchange rates in the forex market between the Kenya Shilling (Ksh) and the United States Dollar (USD) are as follows:

| | **Ksh/1 US ($)** |
|---|---|
| Spot exchange rate: | 103-105 |
| One month forward rate: | 102-103 |
| 3-months forward rate: | 101-102 |

**Required:**

Calculate the amount to be received by Kadzenga Limited using:

(i) Forward contract hedge. (2 marks)

(ii) Money market hedge. (6 marks)

(iii) Using the results obtained in (a) (i) and (a) (ii) above, advise the management of Kadzenga Limited on the best hedging strategy. (2 marks)

(b) Ziani Limited, an unlevered firm has in issue 10 million ordinary shares that are currently selling at the securities exchange for Sh.20 each.

**Additional information:**

1. The firm's most recent earnings per share (EPS) is Sh.4.0 and adopts a 100% dividend payout.
2. It is expected that the firm's future dividends in each year will remain constant in perpetuity.
3. The firm is considering to issue 12% new debentures to raise Sh.50 million in order to finance an expansion programme. This will effectively change the status of the firm from unlevered to a levered firm.
4. The firm pays corporation tax at the rate of 30%.

**Required:**

Using Modigliani and Miller's propositions, determine:

(i) The cost of equity before and after issue of the long-term debt. (3 marks)

(ii) The weighted average cost of capital (WACC) before and after issue of the debt. (3 marks)

(iii) The current market value of the firm before and after issue of the debt. (2 marks)

(iv) Advise the management of Ziani Limited on whether to change its capital structure. (2 marks)

**(Total: 20 marks)**

**QUESTION FIVE**

(a) Jeza Tours and Travel is a private limited company in the tourism industry. In order to improve customer service and provide the management with timely and quality information, the company is contemplating to purchase 8 micro-computers at a cost of Sh.100,000 each.

Installation cost for all the computers will amount to Sh.80,000. It is estimated that once installed, the computers will increase the company's earnings before depreciation and tax from Sh.12,000,000 to Sh.12,500,000 annually.

The computers are expected to last for 10 years after which they will be obsolete with no resale value.

The Operations Manager proposes that the computers will be useful for 15 years with no resale value.

The Marketing Manager, on the other hand argues that the company needs the computers for only 5 years, after which they can be disposed of at Sh. 50,000 each.

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The probability distribution of the useful life of the computers is given as follows:

| Probability | Useful life of computers (years) |
|---|---|
| 0.20 | 5 |
| 0.50 | 10 |
| 0.30 | 15 |

The company is in the 30% tax bracket.

The company's cost of capital is 24% and uses the straight-line method of depreciation.

**Required:**

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

(ii) The standard deviation of the expected net present value. (3 marks)

(iii) If the net present value (NPV) of the project is less than Sh.200,000, the firm will be exposed to a financial distress.
Determine the probability that the firm will avoid financial distress. (Assume normal distribution).
(3 marks)

(b) Excellent Ltd. is considering acquiring Best Ltd. a firm in the same industry in order to consolidate its market share. Best Ltd. has been less profitable, so it has paid an average of only 20% in taxes during the last several years. In addition, it has used little debt having a debt ratio of 25%. If the acquisition would be implemented, Excellent Ltd. could operate Best Ltd. as a separate, wholly owned subsidiary. This will increase Excellent Ltd.'s gearing ratio to 40%.

The following is a forecasted financial data for Best Ltd. over the next five years:

| Year | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| | Sh. "million" | Sh. "million" | Sh. "million" | Sh. "million" | Sh. "million" |
| Net sales | 50 | 60 | 75 | 70 | 65 |
| Operating costs | 5 | 10 | 15 | 15 | 12 |
| Selling and administration costs | 10 | 10 | 8 | 9 | 11 |
| Acceptable investment project costs | 0.5 | 0.70 | 1.60 | 1.20 | 0.20 |

**Additional information:**

1. The risk-free rate of return is 8% and debt is considered to be risk-free.
2. Expected return of the market portfolio is 13%.
3. The firm's levered equity beta after acquisition is estimated at 0.80.
4. After 5 years, the net cash flows of Best Ltd. shall increase at a constant rate of 6% per annum in perpetuity.
5. Corporation tax rate is 30%.
6. The firm's gross profit margin is 40%.
7. Best Ltd. incurs fixed financing cost of Sh.2 million per annum.
8. The firm's equity shares and bonds are currently trading at par.

**Required:**

Determine the maximum price payable to acquire Best Ltd. using the discounted free cash flow basis. (10 marks)

**(Total: 20 marks)**

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

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

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

* The factor is zero to four decimal places

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

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

| Number of payments | 1% | 2% | 3% | 4% | 5% | 6% | 7% | 8% | 9% | 10% | 12% | 14% | 15% | 16% | 18% | 20% | 24% | 28% | 32% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.9901 | 0.9804 | 0.9709 | 0.9615 | 0.9524 | 0.9434 | 0.9346 | 0.9259 | 0.9174 | 0.9091 | 0.8929 | 0.8772 | 0.8696 | 0.8621 | 0.8475 | 0.8333 | 0.8065 | 0.7813 | 0.7576 |
| 2 | 1.9704 | 1.9416 | 1.9135 | 1.8861 | 1.8594 | 1.8334 | 1.8080 | 1.7833 | 1.7591 | 1.7355 | 1.6901 | 1.6467 | 1.6257 | 1.6052 | 1.5656 | 1.5278 | 1.4568 | 1.3916 | 1.3315 |
| 3 | 2.9410 | 2.8839 | 2.8286 | 2.7751 | 2.7232 | 2.6730 | 2.6243 | 2.5771 | 2.5313 | 2.4869 | 2.4018 | 2.3216 | 2.2832 | 2.2459 | 2.1743 | 2.1065 | 1.9813 | 1.8684 | 1.7663 |
| 4 | 3.9020 | 3.8077 | 3.7171 | 3.6299 | 3.5460 | 3.4651 | 3.3872 | 3.3121 | 3.2397 | 3.1699 | 3.0373 | 2.9137 | 2.8550 | 2.7982 | 2.6901 | 2.5887 | 2.4043 | 2.2410 | 2.0957 |
| 5 | 4.8534 | 4.7135 | 4.5797 | 4.4518 | 4.3295 | 4.2124 | 4.1002 | 3.9927 | 3.8897 | 3.7908 | 3.6048 | 3.4331 | 3.3522 | 3.2743 | 3.1272 | 2.9906 | 2.7454 | 2.5320 | 2.3452 |
| 6 | 5.7955 | 5.6014 | 5.4172 | 5.2421 | 5.0757 | 4.9173 | 4.7665 | 4.6229 | 4.4859 | 4.3553 | 4.1114 | 3.8887 | 3.7845 | 3.6847 | 3.4976 | 3.3255 | 3.0205 | 2.7594 | 2 5342 |
| 7 | 6.7282 | 6.4720 | 6.2303 | 6.0021 | 5.7864 | 5.5824 | 5.3893 | 5.2064 | 5.0330 | 4.8684 | 4.5638 | 4.2883 | 4.1604 | 4.0386 | 3.8115 | 3.6046 | 3.2423 | 2.9370 | 2.6775 |
| 8 | 7.6517 | 7.3255 | 7.0197 | 6.7327 | 6.4632 | 6.2098 | 5.9713 | 5.7466 | 5.5348 | 5.3349 | 4.9676 | 4.6389 | 4.4873 | 4.3436 | 4.0776 | 3.8372 | 3.4212 | 3.0758 | 2.7860 |
| 9 | 8.5660 | 8.1622 | 7.7861 | 7.4353 | 7.1078 | 6.8017 | 6.5152 | 6.2469 | 5.9952 | 5.7590 | 5.3282 | 4.9464 | 4.7716 | 4.6065 | 4.3030 | 4.0310 | 3.5655 | 3.1842 | 2.8681 |
| 10 | 9.4713 | 8.9826 | 8.5302 | 8.1109 | 7.7217 | 7.3601 | 7.0236 | 6.7101 | 6.4177 | 6.1446 | 5.6502 | 5.2161 | 5.0188 | 4.8332 | 4.4941 | 4.1925 | 3.6819 | 3.2689 | 2 9304 |
| 11 | 10.3676 | 9.7868 | 9.2526 | 8.7605 | 8.3064 | 7.8869 | 7.4987 | 7.1390 | 6.8052 | 6.4951 | 5.9377 | 5.4527 | 5.2337 | 5.0286 | 4.6560 | 4.3271 | 3.7757 | 3.3351 | 2.9776 |
| 12 | 11.2551 | 10.5753 | 9.9540 | 9.3851 | 8.8633 | 8.3838 | 7.9427 | 7.5361 | 7.1607 | 6.8137 | 6.1944 | 5.6603 | 5.4206 | 5.1971 | 4.7932 | 4.4392 | 3.8514 | 3.3868 | 3.0133 |
| 13 | 12.1337 | 11.3484 | 10.6350 | 9.9856 | 9.3936 | 8.8527 | 8.3577 | 7.9038 | 7.4869 | 7.1034 | 6.4235 | 5.8424 | 5.5831 | 5.3423 | 4.9095 | 4.5327 | 3.9124 | 3.4272 | 3.0404 |
| 14 | 13.0037 | 12.1062 | 11.2961 | 10.5631 | 9.8986 | 9.2950 | 8.7455 | 8.2442 | 7.7862 | 7.3667 | 6.6282 | 6.0021 | 5.7245 | 5.4675 | 5.0081 | 4.6106 | 3.9616 | 3.4587 | 3.0609 |
| 15 | 13.8651 | 12.8493 | 11.9379 | 11.1184 | 10.3797 | 9.7122 | 9.1079 | 8.5595 | 8.0607 | 7.6061 | 6.8109 | 6.1422 | 5.8474 | 5.5755 | 5.0916 | 4.6755 | 4.0013 | 3.4834 | 3.0764 |
| 16 | 14.7179 | 13.5777 | 12.5611 | 11.6523 | 10.8378 | 10.1059 | 9.4466 | 8.8514 | 8.3126 | 7.8237 | 6.9740 | 6.2651 | 5.9542 | 5.6685 | 5.1624 | 4.7296 | 4.0333 | 3.5026 | 3.0882 |
| 17 | 15.5623 | 14.2919 | 13.1661 | 12.1657 | 11.2741 | 10.4773 | 9.7632 | 9.1216 | 8.5436 | 8.0216 | 7.1196 | 6.3729 | 6.0472 | 5.7487 | 5.2223 | 4.7746 | 4.0591 | 3.5177 | 3.0971 |
| 18 | 16.3983 | 14.9920 | 13.7535 | 12.6593 | 11.6896 | 10.8276 | 10.0591 | 9.3719 | 8.7556 | 8.2014 | 7.2497 | 6.4674 | 6.1280 | 5.8178 | 5.2732 | 4.8122 | 4.0799 | 3.5294 | 3 1039 |
| 19 | 17.2260 | 15.6785 | 14.3238 | 13.1339 | 12.0853 | 11.1581 | 10.3356 | 9.6036 | 8.9501 | 8.3649 | 7.3658 | 6.5504 | 6.1982 | 5 8775 | 5.3162 | 4.8435 | 4.0967 | 3.5386 | 3.1090 |
| 20 | 18.0456 | 16.3514 | 14.8775 | 13.5903 | 12.4622 | 11.4699 | 10.5940 | 9.8181 | 9.1285 | 8.5136 | 7.4694 | 6.6231 | 6.2593 | 5.9288 | 5.3527 | 4.8696 | 4.1103 | 3.5458 | 3 1129 |
| 25 | 22.0232 | 19.5235 | 17.4131 | 15.6221 | 14.0939 | 12.7834 | 11.6536 | 10.6748 | 9.8226 | 9.0770 | 7.8431 | 6.8729 | 6.4641 | 6.0971 | 5.4669 | 4.9476 | 4.1474 | 3.5640 | 3 1220 |
| 30 | 25.8077 | 22.3965 | 19.6004 | 17.2920 | 15.3725 | 13.7648 | 12.4090 | 11.2578 | 10.2737 | 9.4269 | 8.0552 | 7.0027 | 6.5660 | 6.1772 | 5.5168 | 4.9789 | 4.1601 | 3.5693 | 3 1242 |
| 40 | 32.8347 | 27.3555 | 23.1148 | 19.7928 | 17.1591 | 15.0463 | 13.3317 | 11.9246 | 10.7574 | 9.7791 | 8.2438 | 7.1050 | 6.6418 | 6.2335 | 5.5482 | 4.9966 | 4.1659 | 3.5712 | 3 1250 |
| 50 | 39.1961 | 31.4236 | 25.7298 | 21.4822 | 18.2559 | 15.7619 | 13.8007 | 12.2335 | 10.9617 | 9.9148 | 8.3045 | 7.1327 | 6.6605 | 6.2463 | 5.5541 | 4.9995 | 4.1666 | 3.5714 | 3 1250 |
| 60 | 44.9550 | 34.7609 | 27.6756 | 22.6235 | 18.9293 | 16.1614 | 14.0392 | 12.3766 | 11.0480 | 9.9672 | 8.3240 | 7.1401 | 6.6651 | 6.2402 | 5 5553 | 4.9999 | 4.1667 | 3.5714 | 3 1250 |

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## CPA PART III SECTION 5

## ADVANCED FINANCIAL MANAGEMENT

**THURSDAY: 29 November 2018.** **Time Allowed: 3 hours.**

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

### QUESTION ONE

(a) In the context of corporate restructuring and reorganisation, differentiate between the following terms:

(i) "Leveraged buy-out" and "management buy-out" (2 marks)

(ii) "Divestiture" and "spin-off" (2 marks)

(iii) "Unbundling" and "sell-off". (2 marks)

(b) Mavueni Limited is considering undertaking a financial reconstruction during which it would repurchase its outstanding ordinary shares using debt. This will raise its debt to equity ratio to 1.20. The following information was available for the company:

1. Existing debt to equity ratio is 0.80.
2. The asset beta (ungeared beta of equity) is 0.30.
3. The risk-free rate of return is 8%.
4. The return of market portfolio is 14%.
5. The company adopts 50% payout ratio as its dividend policy.
6. The company expects to generate earnings per share (EPS) of Sh.6.
7. Debt finance is considered to be risk-free.
8. The corporate tax rate is 30%.

**Required:**
Evaluate the impact of financial reconstruction on Mavueni Ltd.'s weighted average cost of capital (WACC). (8 marks)

(c) The following data relate to the probability distributions and returns of securities A and B:

| **Probability ($P_i$)** | **Security returns (%)** | |
|---|---|---|
| | **Security A** | **Security B** |
| 0.10 | –5 | 10 |
| 0.25 | 10 | 15 |
| 0.40 | 15 | 10 |
| 0.25 | 20 | 0 |

**Required:**
The proportion of each security to be invested in the portfolio in order to attain a zero portfolio risk. (6 marks)

**(Total: 20 marks)**

### QUESTION TWO

(a) Discuss three practical challenges that could be encountered when making capital investment decisions. (6 marks)

(b) Galanema Ltd. is considering to introduce new cheap plastic rulers into the market. This will involve investing in a new plant at a cost of Sh.280 million.

The plant is expected to have a useful life of 5 years at the end of which salvage value will be nil. The firm's policy is to depreciate all of its fixed assets on a straight line basis.



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

| Unit selling price | | Unit variable cost | | Annual sales volume | |
|---|---|---|---|---|---|
| Value (Sh.) | Probability | Value (Sh.) | Probability | Value (Sh."million") | Probability |
| 35 | 0.30 | 15 | 0.20 | 4 | 0.10 |
| 30 | 0.40 | 10 | 0.50 | 7 | 0.60 |
| 50 | 0.30 | 25 | 0.30 | 9 | 0.30 |

**Additional information:**

1. The firm expects to incur fixed operating costs excluding depreciation of Sh.30 million in each year.
2. The company's cost of capital is 17%.
3. The corporate tax rate is 30%.

**Required:**

(i) The expected net present value (NPV) of the new product. (6 marks)

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

(802560 638351 057530 150353 603785 553525 245239 369948 160252 857015) and compute the expected net present value of the project. (8 marks)

**(Total: 20 marks)**

**QUESTION THREE**

(a) The following are summarised financial statements of Dzikunze Limited as at 31 December 2015 to 31 December 2017:

**Income statement for the year ended 31 December:**

| | 2015 Sh."000" | 2016 Sh."000" | 2017 Sh."000" |
|---|---|---|---|
| Turnover | 90,000 | 100,000 | 120,000 |
| Operating profit | 15,000 | 20,000 | 25,000 |
| Interest | (2,000) | (4,000) | (5,000) |
| Profit before tax | 13,000 | 16,000 | 20,000 |
| Taxation (30%) | (3,900) | (4,800) | (6,000) |
| Profit after tax | 9,100 | 11,200 | 14,000 |
| Proposed dividends | (2,100) | (2,500) | (3,000) |
| Retained profit | 7,000 | 8,700 | 11,000 |

**Statement of financial position as at 31 December 2017:**

| | Sh."000" |
|---|---|
| Non-current assets | 60,000 |
| Current assets | 40,000 |
| | 100,000 |
| Financed by: | |
| Ordinary share capital (Sh.20 par value) | 30,000 |
| Reserves | 20,000 |
| 10% long term debentures (Sh.100 par value) | 30,000 |
| Short-term debts | 20,000 |
| | 100,000 |

**Additional information:**

1. Stock market analysts expect post-tax earnings and dividends to grow at the rate of 25% per annum for the next three years. Thereafter, the annual growth rate will revert to the company's growth rate and remain constant in each year to perpetuity.
2. Dzikunze Ltd.'s overall beta is 0.80 and the beta of equity is 0.75.
3. The risk-free rate of return is 12%.
4. The market rate of return is 28%.
5. The current market price of ordinary share is Sh.67.70 cum-dividend.
6. The debenture price is Sh.89.50 ex-interest.
7. The corporation tax rate is 30%.

**Required:**

(i) Evaluate whether Dzikunze Ltd.'s share is currently overvalued or undervalued by the market forces. (8 marks)

(ii) Advise a prospective investor whether to buy the ordinary shares of Dzikunze Limited. (2 marks)


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(b) Chigiri Investment Limited is a company based in Kenya. The company exported goods on credit to a firm in the United States of America (USA). The company expects to receive US$ 800,000 in one year's time.

The current spot exchange rate is 1US$ = KES.60.

However, Chigiri Investment Limited created a probability distribution for the forward spot rate in one year as follows:

| **Probability** | **Forward spot rate KES/1 US $** |
|---|---|
| 0.20 | 61 |
| 0.50 | 63 |
| 0.30 | 67 |

**Additional information:**

1. One year put options on the US$ are available with an exercise price of KES.63 and a premium of KES. 4 per US$.
2. One year call options are available on the US$ with an exercise price of KES.60 and a premium of KES 3 per US$.
3. The future spot rate is estimated in a year's time to be KES. 62 per 1US$.
4. The following are the money market annual rates:

| | **Kenya Annual rates (%)** | **USA Annual rates (%)** |
|---|---|---|
| Borrowing | 18 | 12 |
| Deposit | 9 | 6 |

**Required:**

(i) Determine whether a forward market hedge, money market hedge or currency option hedge would be the most appropriate hedging strategy for the company. (9 marks)

(ii) Advise a prospective investor, the most appropriate hedging strategy if no hedging takes place. (1 mark)

**(Total: 20 marks)**

**QUESTION FOUR**

(a) A financial analyst is interested in using the Black-Scholes Model (BSM) to value call options on the stock.

The following information is available:

1. The price of the stock is Sh.35.
2. The strike price is Sh.30.
3. The option matures in 9 months.
4. The volatility of returns of the stock is 0.30.
5. The risk-free rate is 10%.

**Required:**

The value of a call option using the Black-Scholes Model. (4 marks)

(b) The following information relate to two securities, namely A and B and the market portfolio for the year 2018:

| **Probability** | **Forecasted rate of returns (%)** | | |
|---|---|---|---|
| | **Security A** | **Security B** | **Market portfolio** |
| 0.20 | 15 | 12 | 16 |
| 0.50 | 10 | 15 | 12 |
| 0.30 | 8 | 10 | 7 |

The treasury bills yield rate is expected to be 8%.

**Required:**

(i) The Beta coefficient of securities A and B. (4 marks)

(ii) Using capital asset pricing model (CAPM), determine the minimum required rate of returns for securities A and B. (2 marks)

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(c) Chilulu Industries Limited is considering acquisition of Roka Corporation Ltd. in a share for share exchange. The financial data for the two companies are given below:

| | Chilulu Ltd. (Sh.) | Roka Ltd. (Sh.) |
|---|---|---|
| Sales (millions) | 500 | 100 |
| Net earnings (millions) | 30 | 12 |
| Ordinary shares outstanding (millions) | 6 | 2 |
| Ordinary share market price, per share (MPS) | 50 | 40 |
| Dividend per share (DPS) | 2 | 1.50 |

**Additional information:**

1. Chilulu Limited is not willing to incur an initial dilution in its earnings per share (EPS).
2. Chilulu Limited will have to offer a minimum of 25% of Roka Ltd.'s current share market price.

**Required:**

(i) The relevant offer price range. (4 marks)

(ii) If Roka Ltd.'s shareholders accept an offer by Chilulu Ltd. of Sh.40 per share in a share for share exchange. Determine the post-merger earnings per share (EPS). (4 marks)

(iii) Using the results obtained in (c) (ii) above and assuming that Chilulu Ltd.'s price-earning (P/E) ratio will remain unchanged after the merger, determine the post acquisition market price of a share of Chilulu Limited. (2 marks)

**(Total: 20 marks)**

**QUESTION FIVE**

(a) Analyse three assumptions of the income approach of valuing real estates business in your country. (6 marks)

(b) A large manufacturing firm based in Kenya is tendering for an order in South Africa. The tender conditions state that payment will be made in South African Rands (ZAR) in 24 months' time from now. The company is unsure of what price to tender. The company's marginal cost of production at the time of tendering is estimated to be Kenya shillings (KES) 2,000,000 and a 20% mark-up is applicable for the company.

Exchange rates:
KES/1 ZAR

Spot rate: 8.025 – 8.125

**Additional information:**

1. No forward rate exists for 24 months' time.
2. Market information between Kenya and South Africa:

| | South Africa | Kenya |
|---|---|---|
| Annual inflation rates | 6% | 8% |
| Annual interest rates available to the manufacturing firm: | | |
| Borrowing rate | 12% | 18% |
| Investment rate | 8% | 6% |

**Required:**

Using the purchasing power parity model, recommend the tender price to be used. (7 marks)

(c) Embakasi Investment Ltd. contemplates to determine its optimal capital structure which currently consists of only debt and common equity.

The company does not use preference shares in its capital structure and does not plan to do so in the near future.

In order to estimate how much its debt would cost at different debt levels, the company's financial controller has consulted with investment banks and the following information was obtained:

| Debt to equity ratio | Bond rating | Before tax cost of debt (%) |
|---|---|---|
| 0.00 | A | 0 |
| 0.25 | BBB | 8.5 |
| 0.60 | BB | 10 |
| 1.70 | C | 14 |
| 2.50 | D | 16 |



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**Additional information:**

1. The company uses the capital asset pricing model (CAPM) to estimate the cost of capital.
2. The risk-free rate of return is 5%.
3. The market risk premium is 8%.
4. The corporate tax rate is 30%.
5. The company uses the Hamada model to determine its levered equity Beta.
6. The asset Beta (unlevered equity Beta) is 1.20.

**Required:**

(i) The optimal capital structure of Embakasi Investment Ltd. (6 marks)

(ii) The optimal weighted average cost of capital (WACC) of Embakasi Investment Ltd. (1 mark)

**(Total: 20 marks)**

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

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

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

* The factor is zero to four decimal places

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

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

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

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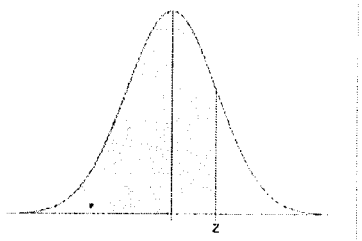
# Standard Normal Cumulative Probability Table




Cumulative probabilities for POSITIVE z-values are shown in the following table:

| z | 0.00 | 0.01 | 0.02 | 0.03 | 0.04 | 0.05 | 0.06 | 0.07 | 0.08 | 0.09 |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.5000 | 0.5040 | 0.5080 | 0.5120 | 0.5160 | 0.5199 | 0.5239 | 0.5279 | 0.5319 | 0.5359 |
| 0.1 | 0.5398 | 0.5438 | 0.5478 | 0.5517 | 0.5557 | 0.5596 | 0.5636 | 0.5675 | 0.5714 | 0.5753 |
| 0.2 | 0.5793 | 0.5832 | 0.5871 | 0.5910 | 0.5948 | 0.5987 | 0.6026 | 0.6064 | 0.6103 | 0.6141 |
| 0.3 | 0.6179 | 0.6217 | 0.6255 | 0.6293 | 0.6331 | 0.6368 | 0.6406 | 0.6443 | 0.6480 | 0.6517 |
| 0.4 | 0.6554 | 0.6591 | 0.6628 | 0.6664 | 0.6700 | 0.6736 | 0.6772 | 0.6808 | 0.6844 | 0.6879 |
| 0.5 | 0.6915 | 0.6950 | 0.6985 | 0.7019 | 0.7054 | 0.7088 | 0.7123 | 0.7157 | 0.7190 | 0.7224 |
| 0.6 | 0.7257 | 0.7291 | 0.7324 | 0.7357 | 0.7389 | 0.7422 | 0.7454 | 0.7486 | 0.7517 | 0.7549 |
| 0.7 | 0.7580 | 0.7611 | 0.7642 | 0.7673 | 0.7704 | 0.7734 | 0.7764 | 0.7794 | 0.7823 | 0.7852 |
| 0.8 | 0.7881 | 0.7910 | 0.7939 | 0.7967 | 0.7995 | 0.8023 | 0.8051 | 0.8078 | 0.8106 | 0.8133 |
| 0.9 | 0.8159 | 0.8186 | 0.8212 | 0.8238 | 0.8264 | 0.8289 | 0.8315 | 0.8340 | 0.8365 | 0.8389 |
| 1.0 | 0.8413 | 0.8438 | 0.8461 | 0.8485 | 0.8508 | 0.8531 | 0.8554 | 0.8577 | 0.8599 | 0.8621 |
| 1.1 | 0.8643 | 0.8665 | 0.8686 | 0.8708 | 0.8729 | 0.8749 | 0.8770 | 0.8790 | 0.8810 | 0.8830 |
| 1.2 | 0.8849 | 0.8869 | 0.8888 | 0.8907 | 0.8925 | 0.8944 | 0.8962 | 0.8980 | 0.8997 | 0.9015 |
| 1.3 | 0.9032 | 0.9049 | 0.9066 | 0.9082 | 0.9099 | 0.9115 | 0.9131 | 0.9147 | 0.9162 | 0.9177 |
| 1.4 | 0.9192 | 0.9207 | 0.9222 | 0.9236 | 0.9251 | 0.9265 | 0.9279 | 0.9292 | 0.9306 | 0.9319 |
| 1.5 | 0.9332 | 0.9345 | 0.9357 | 0.9370 | 0.9382 | 0.9394 | 0.9406 | 0.9418 | 0.9429 | 0.9441 |
| 1.6 | 0.9452 | 0.9463 | 0.9474 | 0.9484 | 0.9495 | 0.9505 | 0.9515 | 0.9525 | 0.9535 | 0.9545 |
| 1.7 | 0.9554 | 0.9564 | 0.9573 | 0.9582 | 0.9591 | 0.9599 | 0.9608 | 0.9616 | 0.9625 | 0.9633 |
| 1.8 | 0.9641 | 0.9649 | 0.9656 | 0.9664 | 0.9671 | 0.9678 | 0.9686 | 0.9693 | 0.9699 | 0.9706 |
| 1.9 | 0.9713 | 0.9719 | 0.9726 | 0.9732 | 0.9738 | 0.9744 | 0.9750 | 0.9756 | 0.9761 | 0.9767 |
| 2.0 | 0.9772 | 0.9778 | 0.9783 | 0.9788 | 0.9793 | 0.9798 | 0.9803 | 0.9808 | 0.9812 | 0.9817 |
| 2.1 | 0.9821 | 0.9826 | 0.9830 | 0.9834 | 0.9838 | 0.9842 | 0.9846 | 0.9850 | 0.9854 | 0.9857 |
| 2.2 | 0.9861 | 0.9864 | 0.9868 | 0.9871 | 0.9875 | 0.9878 | 0.9881 | 0.9884 | 0.9887 | 0.9890 |
| 2.3 | 0.9893 | 0.9896 | 0.9898 | 0.9901 | 0.9904 | 0.9906 | 0.9909 | 0.9911 | 0.9913 | 0.9916 |
| 2.4 | 0.9918 | 0.9920 | 0.9922 | 0.9925 | 0.9927 | 0.9929 | 0.9931 | 0.9932 | 0.9934 | 0.9936 |
| 2.5 | 0.9938 | 0.9940 | 0.9941 | 0.9943 | 0.9945 | 0.9946 | 0.9948 | 0.9949 | 0.9951 | 0.9952 |
| 2.6 | 0.9953 | 0.9955 | 0.9956 | 0.9957 | 0.9959 | 0.9960 | 0.9961 | 0.9962 | 0.9963 | 0.9964 |
| 2.7 | 0.9965 | 0.9966 | 0.9967 | 0.9968 | 0.9969 | 0.9970 | 0.9971 | 0.9972 | 0.9973 | 0.9974 |
| 2.8 | 0.9974 | 0.9975 | 0.9976 | 0.9977 | 0.9977 | 0.9978 | 0.9979 | 0.9979 | 0.9980 | 0.9981 |
| 2.9 | 0.9981 | 0.9982 | 0.9982 | 0.9983 | 0.9984 | 0.9984 | 0.9985 | 0.9985 | 0.9986 | 0.9986 |
| 3.0 | 0.9987 | 0.9987 | 0.9987 | 0.9988 | 0.9988 | 0.9989 | 0.9989 | 0.9989 | 0.9990 | 0.9990 |
| 3.1 | 0.9990 | 0.9991 | 0.9991 | 0.9991 | 0.9992 | 0.9992 | 0.9992 | 0.9992 | 0.9993 | 0.9993 |
| 3.2 | 0.9993 | 0.9993 | 0.9994 | 0.9994 | 0.9994 | 0.9994 | 0.9994 | 0.9995 | 0.9995 | 0.9995 |
| 3.3 | 0.9995 | 0.9995 | 0.9995 | 0.9996 | 0.9996 | 0.9996 | 0.9996 | 0.9996 | 0.9996 | 0.9997 |
| 3.4 | 0.9997 | 0.9997 | 0.9997 | 0.9997 | 0.9997 | 0.9997 | 0.9997 | 0.9997 | 0.9997 | 0.9998 |

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**CPA PART III SECTION 5**

**ADVANCED FINANCIAL MANAGEMENT**

**THURSDAY: 24 May 2018.** **Time Allowed: 3 hours.**

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

**QUESTION ONE**

(a) The objectives of a corporate governance system are to eliminate or mitigate conflicts of interest among stakeholders, particularly between managers and shareholders, and to ensure that the assets of the company are used efficiently and productively in the best interest of the investors and other stakeholders.

**Required:**
In the context of the above statement, discuss four core attributes of an effective corporate governance system. (4 marks)

(b) In relation to investment appraisal, evaluate four limitations of sensitivity analysis. (4 marks)

(c) Tabby Ltd. has a potential investment opportunity for which the initial cash outlay and future cash flows are uncertain. The analysis carried out provided the following probability estimates:

| Probability estimates | | | |
|---|---|---|---|
| Cash outlay | | Annual cash inflows | |
| **Probability** | **Amount Sh."000"** | **Probability** | **Amount Sh."000"** |
| 0.40 | 250,000 | 0.20 | 45,000 |
| 0.25 | 280,000 | | |
| | | 0.40 | 50,000 |
| 0.25 | 300,000 | | |
| 0.10 | 305,000 | 0.40 | 60,000 |

**Additional information:**
1. The cost of capital is 10%.
2. Life of the project is expected to be 10 years.
3. The salvage value is zero.

**Required:**
(i) Construct a decision tree for the investment to show pay offs, probabilities and net present value (NPV) for each alternative. (6 marks)

(ii) The expected NPV of the project. (3 marks)

(iii) If the NPV of the project is less than Sh.5 million, Tabby Ltd. would be exposed to a hostile takeover.
Compute the probability that Tabby Ltd. will avoid a hostile takeover.
(Assume a normal distribution and that the variance of the NPV is Sh.1,861.47 million). (3 marks)

**(Total: 20 marks)**

**QUESTION TWO**

(a) The capital asset pricing model (CAPM) is subject to theoretical and practical limitations. Theoretical limitations are inherent in the structure of the model, whereas practical limitations arise in implementing the model.

**Required:**
Summarise two practical limitations of CAPM. (2 marks)



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(b) A portfolio manager creates the following portfolio:

| Security | Expected annual return (%) | Expected standard deviation (%) |
|---|---|---|
| 1 | 16 | 20 |
| 2 | 12 | 20 |

**Required:**

(i) The proportion invested in Security 1, if the portfolio of the two securities has an expected return of 15%. (1 mark)

(ii) The expected standard deviation of an equal-weighted portfolio, if the correlation of returns between the two securities is -0.15. (2 marks)

(iii) The expected standard deviation of an equal-weighted portfolio, if the returns of the two securities are uncorrelated. (2 marks)

(c) Kent Investment Fund (KIF) in which you plan to invest has a total capital of Sh.500 million invested in the shares of five companies as follows:

| Company | Amount invested in shares Sh."million" | Beta coefficient |
|---|---|---|
| Alpha Ltd. | 140 | 0.8 |
| Beta Ltd. | 80 | 1.5 |
| Chatter Ltd. | 120 | 3.0 |
| Dinner Ltd. | 100 | 1.0 |
| Eastern Ltd. | 60 | 2.5 |

**Additional information:**

1. The beta coefficient of KIF can be determined as a weighted average of the fund's investment.
2. The current risk-free rate of return is 8%.
3. The market returns have the following estimated probability distribution for the next period:

| Probability | Market return (%) |
|---|---|
| 0.1 | 7 |
| 0.2 | 9 |
| 0.4 | 11 |
| 0.2 | 13 |
| 0.1 | 15 |

**Required:**

(i) The estimated equation of the security market line (SML). (3 marks)

(ii) The fund's required rate of return for the next period. (3 marks)

(iii) Suppose Anthony Muli, the Chief Investment Officer (CIO) of KIF receives a proposal to invest in a new company. The investment needed to take a position in the new company's shares is Sh.50 million.

The forecasted rate of return from this investment and the probability of their occurrence in different states of nature, are given as follows:

| State of Nature | Probability | Forecasted rate of return (%) |
|---|---|---|
| A | 0.1 | 10 |
| B | 0.2 | 15 |
| C | 0.4 | 20 |
| D | 0.2 | 10 |
| E | 0.1 | 15 |

Using the capital asset pricing model (CAPM), advise Anthony Muli on whether to invest in the new company's shares. (7 marks)

**(Total: 20 marks)**



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**QUESTION THREE**

(a) Describe the following pre-offer takeover defensive mechanisms:

(i) Poison pills. (1 mark)

(ii) Golden parachutes. (1 mark)

(iii) Fair price amendments. (1 mark)

(iv) Supermajority voting provisions. (1 mark)

(v) Restricted voting rights. (1 mark)

(b) Explain five factors that Multinational Corporations (MNCs) should consider when making long-term investment decisions. (5 marks)

(c) Nangina Ltd. is considering acquiring Bwiri Ltd. Nangina Ltd. is contemplating financing of the acquisition of Bwiri Ltd. using any of the following options:

**Option 1: An ordinary share for ordinary share exchange**

Under the terms of acquisition, Nangina Ltd. will offer one of its ordinary shares for every two shares in Bwiri Ltd.

**Option 2: Ordinary shares for debentures exchange**

Nangina Ltd. expects to offer 2 units of 10% debentures for every 100 ordinary shares in Bwiri Ltd. Each unit of debenture has a par value of Sh.100 each.

The summarised financial information relating to the two companies for the year ended 30 November 2017 was as follows:

| | **Nangina Ltd.** | **Bwiri Ltd.** |
|---|---|---|
| Profit after tax (Sh.) | 120 million | 30 million |
| Number of shares | 20 million | 6 million |
| Earnings per Share (EPS) (Sh.) | 6 | 5 |
| Market price per share (Sh.) | 50 | 25 |
| Price earnings ratio | 8.33 times | 5 times |

The corporate tax rate is 30%.

**Required:**

Determine the combined operating profit of the two firms and the post acquisition earnings per share (EPS) at the point of indifference in the firm's earnings under financing options (1) and (2) above. (10 marks)

**(Total: 20 marks)**

**QUESTION FOUR**

(a) In relation to derivatives markets and contracts:

(i) Highlight four characteristics that are common to both forward contracts and futures contracts. (4 marks)

(ii) Differentiate between a "straddle" and a "strangle". (2 marks)

(iii) Outline three methods of terminating a swap contract. (3 marks)

(b) Lagdara Ltd., an unlevered firm, operates in the textile industry. The firm's current capital structure is summarised as follows:

| | **Sh. "000"** |
|---|---|
| Ordinary share capital (Sh.50 par value) | 120,000 |
| Share premium | 40,000 |
| Retained earnings | 80,000 |
| Shareholders' funds | 240,000 |

The firm is considering borrowing 10% debt finance of Sh.40 million in order to finance an expansion programme, making it a levered firm.



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**Additional information:**

1. Annual earnings before interest and tax (EBIT) generated by the firm are Sh.60 million. This is expected to remain constant each year in perpetuity.
2. The firm's ordinary shares are currently trading at a market price per share (MPS) of Sh.200 at the securities exchange.
3. The corporate tax rate applicable is 30%.

**Required:**

(i) Using the Modigliani-Miller (M-M) approach and the information provided above, analyse the financial implications of the change in capital structure of Lagdara Ltd. (9 marks)

(ii) Justifying your answer, advise the management of Lagdara Ltd. on whether to change its capital structure. (2 marks)

**(Total: 20 marks)**

**QUESTION FIVE**

(a) Assess five limitations of applying the free cash flow (FCF) approach using the weighted average cost of capital (WACC) as a discount rate when evaluating projects with different risks or debt capacity. (5 marks)

(b) The issue of taxation relating to international trade has become important as business transactions become more complicated. Transfer pricing is one such area which has come under scrutiny by tax authorities all over the world. Transfer pricing has been of great concern to the government as it has made the government lose huge tax revenues.

**Required:**

In relation to the above statement, summarise three objectives of transfer pricing other than reducing tax liability. (3 marks)

(c) Kikumi Ltd. expects to receive 750.000 Euros from a credit customer in the European Union in 6 months' time. The spot exchange rate is 2.349 Euros (EUR) per United States Dollar (USD) and the 6-month forward rate is 2.412 Euros per USD.

The following commercial interest rates are available to Kikumi Ltd.

| | **Deposit rate per annum (%)** | **Borrowing rate per annum (%)** |
|---|---|---|
| EUR | 4.0 | 8.0 |
| USD | 2.0 | 3.5 |

Kikumi Ltd. does not have any surplus cash to use in hedging the future Euro receipt.

**Required:**

Evaluate whether the money market hedge or a forward hedge would be preferred. (7 marks)

(d) Kisima Ltd. expects free cash flows of Sh.7.36 million this year and a future growth rate of 4% per annum. Currently, the firm has Sh.30 million in debt outstanding. This leverage will remain fixed during the year but at the end of each year, Kisima Ltd. is expected to increase or decrease its debt to maintain a constant debt/equity ratio.

Kisima Ltd. pays 5% interest on its debt and has an unlevered cost of capital of 12%.

The corporate tax rate is 40%.

**Required:**

Compute the value of Kisima Ltd. (5 marks)

**(Total: 20 marks)**

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

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

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

* The factor is zero to four decimal places

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

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

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

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**CPA PART III SECTION 5**

**ADVANCED FINANCIAL MANAGEMENT**

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

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

**QUESTION ONE**

(a) Discuss how corporate governance might impact the dividend policy of a firm. (6 marks)

(b) Viwanda Ltd. is considering purchasing a machine at a cost of Sh.40 million. The company will incur an additional Sh.20 million to modify the machine for special use.

The machine is expected to have a useful life of 3 years and a scrap value of Sh.15 million after 3 years.

This investment will require an increase in net working capital of Sh.2 million at the beginning of its useful life.

The additional investment in working capital will return to normal at the end of the machine's useful life.

The machine's purchase will not affect revenues but it is expected to save the company Sh.25 million each year in before tax operating costs, mainly labour.

The corporation tax rate is 30% and the company's cost of capital is 10%.

**Required:**

(i) Advise Viwanda Ltd. on whether to buy the machine. (6 marks)

(ii) Suppose the firm's management is unsure about the savings in before tax operating costs. Carry out a sensitivity analysis on this variable assuming that the variable shall vary adversely by 10%. (8 marks)

**(Total: 20 marks)**

**QUESTION TWO**

(a) Discuss three reasons why economic value added (EVA) is gaining prominence as an alternative measure of a company's financial performance. (6 marks)

(b) With reference to financial management in the global context, distinguish between the following terms:

(i) A "Eurobond" and a "Euro note". (2 marks)

(ii) An option being "in the money" and "out of the money". (2 marks)

(c) Wekeza Investments has initiated an investment fund called "Faidika" the funds of which will be invested only in stocks and bonds of infrastructure and construction companies.

60% of the fund value is invested in companies engaged in commercial construction services and the other 40% in companies engaged in developing residential properties. The average beta of returns from development of residential properties is 1.9 and that of commercial construction services is 1.4.

The benchmark market return is 11.2% while Treasury bonds carry an interest rate of 4.25%.



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The following information on the net asset values (NAV) per share is provided:

| Month | January | February | March | April | May | June |
|---|---|---|---|---|---|---|
| Closing NAV "Sh" | 18.60 | 17.80 | 18.20 | 18.00 | 17.80 | 16.80 |
| Dividend payout "Sh" | - | 0.75 | - | - | - | 1.20 |

| Month | July | August | September | October | November | December |
|---|---|---|---|---|---|---|
| Closing NAV "Sh" | 17.20 | 17.80 | 17.90 | 18.10 | 18.80 | 18.50 |
| Dividend payout "Sh" | - | - | - | - | - | - |

The opening NAV for January is Sh.17.75.

**Required:**
Calculate Jensen's alpha relating to "Faidika" and use it to evaluate the fund's performance. (10 marks)
**(Total: 20 marks)**

**QUESTION THREE**

(a) Discuss three reasons why acquisitions often fail to enhance shareholder value. (6 marks)

(b) Mkuki Ltd. is considering making a bid for 100% of the shares of Ngao Ltd., a company in a completely different industry. The bid of Sh.200 million, which is expected to be accepted, will be financed entirely by new debt with a post-tax cost of debt of 7%.

1. **Pre-acquisition information:**

**Mkuki Ltd.**

The company has debt finance totalling Sh.60 million at a pre-tax rate of 10%.

The company has 50 million equity shares each with a current market value of Sh.22. The equity beta is 1.37.

The post-tax operating cash flows of Mkuki Ltd. are as follows:

| Year | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Sh"million" | 60.3 | 63.9 | 67.8 | 71.8 | 76.1 |

**Ngao Ltd.**

The company has an equity beta of 2.5 and 65 million equity shares in issue with a total current market value of Sh.156 million.

The company's debt, which will also be taken over by Mkuki Ltd., stands at Sh.12.5 million at a post-tax rate of 7%.

2. **Post-acquisition information:**

Land with a value of Sh.14 million will be sold.



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The post-tax operating cash flows of Ngao Ltd's current business will be:

| Year | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Sh"million" | 15.2 | 15.8 | 16.4 | 17.1 | 17.8 |

3. If the acquisition goes ahead, Mkuki Ltd. will experience an improvement in its credit rating and all existing debts will be charged at a post-tax rate of 7%.
4. Cash flows after year 5 will grow at the rate of 1.5% per annum.
5. The risk-free rate is 5.2% and the market risk premium is 3%.
6. The corporate tax rate is 30%.

**Required:**
Advise whether the acquisition should proceed. (14 marks)
**(Total: 20 marks)**

**QUESTION FOUR**

(a) Two CPA graduates have formed a company to write, market and distribute text books and revision manuals. The company's text books and revision manuals have already been piloted and the market prospects are good. All that is lacking is adequate financing to continue the project. A small group of private investors is interested in financing the new company. Two financing proposals are being evaluated.

1. **Financing option one:**

   This is an all equity capital structure. Three million shillings would be raised by selling ordinary shares at Sh.40 per share.

2. **Financing option two:**

   This will involve the use of financial leverage.

   One million shillings would be raised by selling corporate bonds with an effective interest rate of 14 per cent per annum. The remaining Sh. 2 million would be raised by selling ordinary shares at Sh.40 per share. The use of financial leverage is considered to be a permanent part of the firm's capital so no fixed maturity date is needed for the analysis.

3. The corporation tax rate appropriate for this analysis is 30%.

**Required:**

(i) Find the operating profit (EBIT) indifference level associated with the two financing plans. (4 marks)

(ii) Construct an EPS-EBIT graph for the two financing plans. (4 marks)

(iii) Determine the range of operating profit (EBIT) within which each financing plan above would be recommended. (2 marks)

(b) The following data relate to two companies; Alpha Ltd. and Beta Ltd. which belong to the same risk class.

| | **Alpha Ltd.** | **Beta Ltd.** |
|---|---|---|
| Number of ordinary shares outstanding | 90,000,000 | 150,000,000 |
| Market price per share | Sh.18 | Sh.10 |
| 6% debentures (market value) | Sh.60,000,000 | - |
| Profit before interest and tax | Sh.18,000,000 | Sh.18,000,000 |

All profits after debenture interest are distributed as dividends.

**Required:**

(i) Using suitable calculations, demonstrate how under the Modigliani and Miller approach (without taxes), an investor holding 10 per cent of Alpha Ltd's shares will be better off in switching his holding to Beta Ltd. (8 marks)

(ii) Explain when, according to Modigliani and Miller (without taxes), the process described in (b) (i) above would come to an end. (2 marks)
**(Total: 20 marks)**



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**QUESTION FIVE**

(a) In relation to financial management in a global context, explain how the following theories could be used to forecast exchange rates:

(i) Interest rate parity. (4 marks)

(ii) Purchasing power parity. (4 marks)

(b) Jacques Ltd. is a company based in France where the Euro (€) is widely used. The company has recently imported raw materials from the USA and has been invoiced for US Dollars ($) 240,000 payable in 3 months' time.

In addition, the company has exported finished goods to the USA and Australia. The customer in the USA has been invoiced for US Dollars ($) 69,000 payable in 3 months' time and the Australian customer has been invoiced for Australian dollars (ASD) 395,000 payable in 4 months' time.

The current spot and forward exchange rates are given as follows:

US Dollars ($) / 1 Euro (€)
Spot rate 0.9830 – 0.9850
3 months' forward 0.9520 – 0.9525

Euro (€) / 1 ASD
Spot rate 1.8890 – 1.8920
4 months' forward 1.9510 – 1.9540

The current money market interest rates per annum are given as follows:

| | **Lending** | **Borrowing** |
|---|---|---|
| USA | 10% | 12% |
| Australia | 14% | 16% |
| France | 11.5% | 13% |

**Required:**
Show how the company can hedge its foreign exchange exposure using:

(i) Forward market cover. (6 marks)

(ii) Money market cover. (6 marks)

**(Total: 20 marks)**

.....



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

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

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

* The factor is zero to four decimal places

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

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

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

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# KASNEB

## CPA PART III SECTION 5

## ADVANCED FINANCIAL MANAGEMENT

**THURSDAY: 25 May 2017.** **Time Allowed: 3 hours.**

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

**QUESTION ONE**

(a) Explain two ways in which increased investment in corporate social responsibility (CSR) activities might enhance the value of a firm. (4 marks)

(b) Kenzel Ltd. has the following capital structure which it considers optimal under both the present and forecasted conditions:

| Source of capital | % |
|---|---|
| Long-term debt | 45 |
| Equity capital | 55 |
| **Total** | **100** |

The management of Kenzel Ltd. forecasts the after-tax earnings for the forthcoming year at Sh.2.5 million. The company has been paying 60 per cent of its earnings as dividend and this payment ratio is expected to continue into the foreseeable future. The company's present loan commitment will allow it to incur additional leverage according to the schedule presented below:

| Loan amount (Sh.) | Interest rate on incremental debt |
|---|---|
| 0 - 500,000 | 9% |
| 500,000 - 900,000 | 11% |
| 900,000 and above | 13% |

The company's corporate tax rate is 30%. The current market price of the equity shares of the company is Sh.22. The last dividend on equity shares was paid at Sh.2.20 per share and the expected growth rate is 5%. New equity shares can be sold at a floatation cost of 10% of the issue price.

Kenzel Ltd. has the following investment opportunities for the coming year:

| Project | Cash outlay | Annual net cash flow | Project life (years) | Internal rate of return |
|---|---|---|---|---|
| | Sh. | Sh. | | % |
| A | 675,000 | 155,401 | 8 | ? |
| B | 900,000 | 268,484 | 5 | 15 |
| C | 375,000 | 161,524 | 3 | ? |
| D | 562,500 | 185,194 | 4 | 12 |
| E | 750,000 | 127,351 | 10 | 11 |

**Required:**

(i) The amounts in shillings at which breaks in the marginal cost of capital (MCC) schedule occur. (3 marks)

(ii) The weighted marginal cost of capital (WMCC) in each of the intervals between the breaks in the MCC schedule. (6 marks)

(iii) The internal rate of return (IRR) for project A and project C. (4 marks)

(iv) Using the investment opportunities schedule (IOS), advise on which project(s) should be accepted. (3 marks)

**(Total: 20 marks)**



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**QUESTION TWO**

(a) Analyse three factors that might be responsible for financial distress in a firm. (6 marks)

(b) The following information relates to the performance of six portfolios over a seven-year period:

| Portfolio | Average annual returns (%) | Standard deviation of the average annual returns (%) | Correlation with market returns |
|---|---|---|---|
| P | 18.6 | 27.0 | 0.81 |
| Q | 14.8 | 18.0 | 0.65 |
| R | 15.1 | 8.0 | 0.98 |
| S | 22.0 | 21.2 | 0.75 |
| T | -9.0 | 4.0 | 0.45 |
| U | 26.5 | 19.3 | 0.63 |
| Market return | 12.0 | 12.0 | |
| Risk-free rate | 9.0 | | |

**Required:**

Rank the performance of the above portfolios using:

(i) Sharpe's method. (4 marks)

(ii) Treynor's method. (6 marks)

(c) Compare the rankings using the two methods in (b) above and explain two reasons behind the differences. (4 marks)

**(Total: 20 marks)**

**QUESTION THREE**

(a) Examine four strategies that a company could adopt to defend itself against a hostile takeover. (8 marks)

(b) The following data relate to two companies namely; V Ltd. and J Ltd. operating in the same line of business.

**Financial data as at 30 April 2017:**

| | V Ltd. | J Ltd. |
|---|---|---|
| Market value of debt (Sh."billion") | 6.60 | 11.60 |
| Market value of equity (Sh."billion") | 19.80 | 13.40 |
| Number of shares in issue ("million") | 680.00 | 880.00 |
| Share options outstanding ("million") | 50.80 | - |
| Exercise price per option (Sh. per share) | 22.00 | - |
| Corporate tax rate | 30% | 30% |
| Equity beta | 1.85 | 0.95 |
| Default risk premium | 1.6% | 3.0% |
| Net operating profit after tax and net re-investment (Sh."million") | 900.00 | 410.00 |
| Current earnings per share (Sh. per share) | 1.19 | 0.44 |

**Additional information:**

1. The global equity risk premium is 4% and the most appropriate risk-free rate derived from government securities is 3%.
2. The share options held by the employees were exercisable subject to the employees working for the company for the next three years.
3. The company has an annual employee attrition rate of 5% as employees leave and out of those remaining, 20% are expected not to have achieved the standard of performance required to exercise the options.
4. The options have a time value of Sh.7.31.
5. J Ltd. operates a defined benefit pension scheme which, at its current actuarial valuation, shows a deficit of Sh.860 million.
6. V. Ltd. which has managed to sustain a 5% growth rate in earnings per annum, is considering a debt-financed acquisition of J Ltd. In addition, V Ltd. believes that J Ltd. could register a growth rate of 4% per annum under its current management.

**Required:**

(i) The weighted average cost of capital (WACC) of both J Ltd. and V Ltd. (4 marks)

(ii) The current value of both J Ltd. and V Ltd. (8 marks)

**(Total: 20 marks)**



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**QUESTION FOUR**

(a) Explain three functions of the African Development Bank. (6 marks)

(b) Biashara Ltd. is an import-export company based in Kenya. On 1 January 2017, the company exported coffee worth US $140,000 to the United States (US) of America on a five-month credit.

**Additional information:**

1. The exchange rates in the forex markets were (are expected to be) as follows:

| | KSh/1 US$ |
|---|---|
| 1 January 2017 | 100 |
| 31 May 2017 | 102 |

2. The lending and borrowing rates in the two countries are as follows:

| | Annual lending rate | Annual borrowing rate |
|---|---|---|
| Kenya | 18% | 19% |
| USA | 14% | 15% |

3. The importer will settle the outstanding amount on 31 May 2017.

**Required:**

(i) Using the interest rate parity relationship, compute the expected 5-month forward exchange rate as at 31 May 2017. (4 marks)

(ii) Advise Biashara Ltd. on which is the better hedging strategy between a forward contract and a money market hedge. (10 marks)

**(Total: 20 marks)**

**QUESTION FIVE**

(a) A Ltd. is considering acquiring B Ltd. The selected financial data for the two companies are as follows:

| | A Ltd. | B Ltd. |
|---|---|---|
| Annual sales (Sh."million") | 600 | 120 |
| Net income (Sh."million") | 35 | 3 |
| Ordinary shares outstanding ("millions") | 10 | 2 |
| Earnings per share (EPS) - Sh. | 3.5 | 1.5 |
| Market price per share (MPS) - Sh. | 40 | 15 |

Both companies are in the 30% tax bracket.

**Required:**

(i) The maximum exchange ratio that A Ltd. should agree to if it expects no dilution in earnings per share. (2 marks)

(ii) Total premium that the shareholders of B Ltd. would receive at the exchange ratio calculated in (a) (i) above. (2 marks)

(iii) A Ltd.'s post acquisition earnings per share, if the two companies settle on a price of Sh.20 per share. (2 marks)

(iv) A Ltd.'s post-acquisition earnings per share if every 50 ordinary shares of B Ltd. were exchanged for one 8% debenture of a par value of Sh.1,000 each. (2 marks)

(b) Chuma Ltd. operates a machine which has the following maintenance costs and resale values over its four-year life. The purchase price of the machine is Sh.25,000,000.

| | Year 1 Sh."000" | Year 2 Sh."000" | Year 3 Sh."000" | Year 4 Sh."000" |
|---|---|---|---|---|
| Maintenance costs | 7,500 | 11,000 | 12,500 | 15,000 |
| Resale value (end of year) | 15,000 | 10,000 | 7,500 | 2,500 |

The company's cost of capital is 10%.

**Required:**

Advise the management of Chuma Ltd. on how frequently the machine should be replaced. (12 marks)

**(Total: 20 marks)**

.....



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

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

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

* The factor is zero to four decimal places

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

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

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

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# KASNEB

## CPA PART III SECTION 5

## ADVANCED FINANCIAL MANAGEMENT

**THURSDAY: 24 November 2016.** **Time Allowed: 3 hours.**

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

**QUESTION ONE**

(a) Summarise three assumptions of the Grossman-Hart Model (1986). (6 marks)

(b) SKB Ltd. is considering a proposal to manufacture a new drug named "Millenium". The drug will be manufactured using a machine which will cost Sh.13 million.

The cash flows and drug life relating to "Millenium" have been estimated as stochastic exogenous variables with the following distributions:

| Annual after tax cash flow (Sh."000") | Probability | Drug life in years | Probability |
|---|---|---|---|
| 1,000 | 0.02 | 3 | 0.05 |
| 1,500 | 0.03 | 4 | 0.10 |
| 2,000 | 0.15 | 5 | 0.30 |
| 2,500 | 0.15 | 6 | 0.25 |
| 3,000 | 0.30 | 7 | 0.15 |
| 3,500 | 0.20 | 8 | 0.10 |
| 4,000 | 0.15 | 9 | 0.03 |
| | | 10 | 0.02 |

The minimum required rate of return from this investment is 16%.

The company has approached you as a financial management expert to perform an analysis of the above project.

**Required:**

(i) Using the following random numbers, perform 10 simulation runs of the net present value (NPV) of this project.

| | | | | | | |
|---|---|---|---|---|---|---|
| 5397 | 6699 | 3081 | 1909 | 3167 | 8170 | 3875 |
| 4883 | 9033 | 5852 | | | | |

(12 marks)

(ii) Determine the expected net present value (NPV) of the project. (2 marks)

**(Total: 20 marks)**

**QUESTION TWO**

(a) Explain three challenges likely to be encountered in the application of the capital asset pricing model (CAPM). (6 marks)

(b) Moses Mapesa is in the process of evaluating investments in two companies whose percentage returns in the last 10 years are as shown below:

| Year / Company and percentage return | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| FS Ltd. (%) | 37 | 24 | -7 | 6 | 18 | 32 | -5 | 21 | 18 | 6 |
| SN Ltd. (%) | 32 | 29 | -12 | 1 | 15 | 30 | 0 | 18 | 27 | 10 |

**Required:**

(i) Correlation coefficient of the companies' returns. (6 marks)

(ii) Portfolio risk assuming equal weighting. (2 marks)



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(c) Mary Chege has been investing in the shares of various companies quoted on the securities exchange. Currently, she holds a portfolio of shares in four companies; W, X, Y and Z.

The following information has been provided:

| Company | Number of shares held | Equity beta | Market price per share (Sh.) | Expected return on equity |
|---|---|---|---|---|
| W | 10,000 | 1.12 | 130 | 18% |
| X | 15,000 | 0.89 | 100 | 23% |
| Y | 15,000 | 0.70 | 90 | 11% |
| Z | 10,000 | 1.60 | 160 | 17% |

The current market return is 14% per annum and the Treasury Bill's yield is 9% per annum.

**Required:**

(i) The risk of Mary Chege's portfolio relative to that of the market. (4 marks)

(ii) Determine whether Mary Chege should change the composition of her portfolio. (2 marks)

**(Total: 20 marks)**

**QUESTION THREE**

(a) Explain three assumptions of the traditional theories of capital structure. (6 marks)

(b) Majuu Ltd. is just about to commence operations as an international trading company. The firm will have a book value of assets of Sh.320 million and it expects to earn 16% return on these assets before interest and taxes. However, because of certain tax arrangements with foreign governments, the company will not pay any taxes.

It is known that the capitalisation rate for an all equity firm in this business is 12%. The company can borrow debt finance at the rate of 7% per annum. The management is in the process of deciding how to raise the required Sh.10 million debt finance. Assume that the Modigliani and Miller (MM) assumptions apply.

**Required:**

Using the MM model without taxes, determine:

(i) The current value of the unlevered firm. (2 marks)

(ii) The current value of a levered firm if it uses Sh. 10 million of 7% debt. (2 marks)

(iii) The weighted average cost of capital (WACC) of a levered firm at a debt level of 7%, Sh.10 million. (3 marks)

(c) Assuming that the company in (b) above now pays taxes at the rate of 30%, compute the following in a Modigliani and Miller (MM) world:

(i) The current value of the firm if it uses no debt. (2 marks)

(ii) The current value of the firm if it uses the debt level of 7%, Sh.10 million. (2 marks)

(iii) The weighted average cost of capital (WACC) at 7% debt level of Sh.10 million. (3 marks)

**(Total: 20 marks)**

**QUESTION FOUR**

(a) In relation to corporate restructuring and re-organisation, distinguish between the following terms:

(i) "Boot strapping" and "management buyout". (2 marks)

(ii) "Sell off" and "spin off". (2 marks)

(b) Kubwa Ltd., a supermarket chain, is proposing to take-over Small Ltd., a smaller firm in the same industry. In its bid, Kubwa Ltd. has offered four of its shares for every three shares of Small Ltd.



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The following are the latest summarised accounts of the two companies:

**Statements of financial position**

| | Kubwa Ltd. | | Small Ltd. |
|---|---|---|---|
| **Non-current assets:** | **Sh."million"** | **Sh."million"** | **Sh."million"** |
| Land | 966 | | 84.6 |
| Other non-current assets | 300 | | 34 |
| | 1,266 | | 118.6 |
| **Current assets:** | | | |
| Inventory | 656 | 102.8 | |
| Accounts receivable | 24 | 12.6 | |
| Cash | 88 | 10.6 | |
| | 768 | 126.0 | |
| **Current liabilities:** | | | |
| Trade payables | 894 | 92.2 | |
| Other accruals | 68 | 8 | |
| | 962 | 100.2 | |
| Net current assets | (194) | | 25.8 |
| **Long-term liabilities:** | | | |
| 14% loan stock | 400 | - | - |
| Floating rate loans | 228 | 35 | |
| | (628) | | (35) |
| Total net assets | 444 | | 109.4 |
| **Shareholders' funds:** | | | |
| Ordinary share capital | 150 | | 40 |
| Reserves | 294 | | 69.4 |
| Total shareholders' funds | 444 | | 109.4 |

**Income statement**

| | Kubwa Ltd. | Small Ltd. |
|---|---|---|
| | **Sh."million"** | **Sh."million"** |
| Turnover | 2,260 | 362 |
| Earnings before interest and tax | 230 | 28 |
| Interest | (80) | (4) |
| Profit before tax | 150 | 24 |
| Taxation | (50) | (8) |
| Earnings available to shareholders | 100 | 16 |
| Dividends | (48) | (10) |
| Retained earnings | 52 | 6 |

**Additional information:**

1. The par value of the shares of Kubwa Ltd. is Sh.0.50 while the par value of Small Ltd's shares is Sh.1.00.
2. The current share price of Kubwa Ltd. is Sh.4.64 while that of Small Ltd. is Sh.5.90. The current loan stock price of Small Ltd. is Sh. 125.
3. Recent annual growth trends are as follows:

| | Kubwa Ltd. | Small Ltd. |
|---|---|---|
| Dividends | 7% | 8% |
| Earnings per share | 7% | 10% |

4. The following will take place after the acquisition:
   - Surplus warehousing facilities will be sold for Sh.13.6 million.
   - Sh. 18 million will be paid out for redundancy of employees.
   - There will be savings of Sh.5.4 million from wages every year for at least five years.
5. Kubwa Ltd. has an estimated cost of equity of 14.5% and a weighted average cost of capital of 12%.
6. Small Ltd. has an estimated cost of equity of 13%.

**Required:**

(i) Evaluate whether the bid is likely to be viewed favourably by the shareholders of both Kubwa Ltd. and Small Ltd. (10 marks)

(ii) Discuss three factors that are likely to influence the views of the shareholders in the analysis in (b) (i) above. (6 marks)

**(Total: 20 marks)**



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**QUESTION FIVE**

(a) Explain how currency swaps could be used to hedge against the foreign exchange operating exposure of a firm. (4 marks)

(b) International Bank expects that the Mexican Peso (MXP) will depreciate against the US dollar (USD) from its spot rate of $0.15 to $0.14 in ten days. The following interbank lending and borrowing rates exist:

| | **Annual lending rate** | **Annual borrowing rate** |
|---|---|---|
| US dollars (USD) | 8.0% | 8.3% |
| Mexican Peso (MXP) | 8.5% | 8.7% |

Assume that International Bank has a borrowing capacity of either 10 million USD or 70 million MXP in the interbank market, depending on which currency it wants to borrow. Further, assume that one year has 360 days.

**Required:**

(i) Demonstrate how International Bank could capitalise on its expectations without using deposited funds. (5 marks)

(ii) Estimate the profits that could be generated from the strategy adopted in (b) (i) above. (1 mark)

(c) Assume all the information provided in (b) above with this exception: International Bank expects the MXP to appreciate from its present spot rate of $0.15 to $0.17 in 30 days.

**Required:**

(i) Demonstrate how International Bank could capitalise on its expectations without using deposited funds. (5 marks)

(ii) Estimate the profits that could be generated from the strategy adopted in (c) (i) above. (1 mark)

(d) Highlight two shortcomings of the Black-Scholes option pricing model. (4 marks)

**(Total: 20 marks)**

.....



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

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

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

* The factor is zero to four decimal places

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

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

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

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# KASNEB

## CPA PART III SECTION 5

## ADVANCED FINANCIAL MANAGEMENT

**THURSDAY: 26 May 2016.** **Time Allowed: 3 hours.**

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

### QUESTION ONE

(a) In the context of appraisal of capital investments under conditions of uncertainty, explain four limitations of utility analysis. (8 marks)

(b) Planet Ltd. is considering undertaking a 20-year project which requires an initial investment of Sh.250 million in a real estate partnership and whose present value (PV) of expected cash flows is Sh.254 million. Planet Ltd. has the option to abandon the project any time in the next five years for Sh.150 million. The variance in the present value (PV) of the cash flows is 0.09 and the 5-year risk-free rate is 7%.

**Required:**

(i) The net present value (NPV) of the project including the option to abandon the project. (10 marks)

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

**Note:**

1. The Black-Scholes Option Pricing Model

$$C = P_a N(d_1) - P_e N(d_2)e^{-rt}$$

Where:

$$d_1 = \frac{\ln\left[\frac{P_a}{P_e}\right] + (r + 0.5s^2)t}{s\sqrt{t}}$$

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

2. The Put-Call Parity Relationship

$$P = C - P_a + P_e e^{-rt}$$

**(Total: 20 marks)**

### QUESTION TWO

(a) Biashara Ltd. wishes to invest in stocks M and N in two different industries. The following information relates to the two stocks:

| | Stock M | Stock N |
|---|---|---|
| Expected return (%) | 18 | 16 |
| Standard deviation (%) | 8 | 6 |
| Beta coefficient | 1.80 | 1.50 |
| Amount of money invested (Sh.) | 1,200,000 | 800,000 |

**Required:**

(i) The expected portfolio return. (4 marks)

(ii) Explain the effect on the portfolio risk if the returns of stocks M and N were perfectly positively correlated. Include suitable calculations. (6 marks)



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(b) Mapeni Ltd's investment fund comprises four major projects. The details of the projects are as follows:

| Project | Market value of the fund (%) | Expected return (%) | Standard deviation (%) | Coefficient of correlation with the market |
|---|---|---|---|---|
| 1 | 28 | 10 | 15 | 0.55 |
| 2 | 17 | 18 | 20 | 0.75 |
| 3 | 31 | 15 | 14 | 0.84 |
| 4 | 24 | 13 | 18 | 0.62 |

The risk-free rate is 5% and the market return is 14%. The standard deviation of the market return is 13%.

**Required:**

(i) The beta coefficient of the investment fund. (4 marks)

(ii) By comparing the expected return and the required return, advise whether Mapeni Ltd. should change the composition of its portfolio. (6 marks)

**(Total: 20 marks)**

**QUESTION THREE**

On 1 January 2016, Mavuno Limited was in the process of raising funds to undertake four investment projects. These projects required a total of Sh.30 million.

Given below are details relating to the four investment projects:

| Project | Required initial investment Sh. "million" | Internal rate of return (%) |
|---|---|---|
| A | 8 | 26 |
| B | 7 | 16 |
| C | 9 | 20 |
| D | 6 | 22 |

**Additional information:**

1. The company had Sh.9 million available from retained earnings as at 1 January 2016. Any extra equity finance would have to be sourced through an issue of new ordinary shares.
2. The market price per ordinary share on 1 January 2016 was Sh.25.60 ex-dividend. Information on earnings per share (EPS) and dividend per share (DPS) over the last 6 years is as follows:

| Year ended 31 December | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|---|
| EPS (Sh.) | 4.5 | 4.8 | 4.9 | 5.2 | 5.5 | 6.0 |
| DPS (Sh.) | 2.5 | 2.8 | 2.9 | 3.0 | 3.2 | 3.5 |

3. Issue of new ordinary shares would attract a floatation cost of Sh.4.60 per share.
4. 9% irredeemable debentures (par value of Sh.1,000 each) could be sold with net proceeds of 95% due to a discount on issue of 2% and a floatation cost of Sh.30 per debenture. The maximum amount available from the issue of the 9% irredeemable debenture would be Sh.4 million after which debt could only be obtained at 12% interest with net proceeds of 90% of par value.
5. 10% preference shares can be issued at a par value of Sh.80.
6. The company's capital structure, which is considered optimal, is as follows:

| | % |
|---|---|
| Equity capital | 45 |
| Preference share capital | 30 |
| Debenture capital | 25 |
| | 100 |

7. The corporate tax rate applicable is 30%.
8. The company has to exhaust internally generated funds before raising extra funds from external sources.

**Required:**

(a) The levels of total new financing at which breaks occur in the weighted marginal cost of capital (WMCC) curve. (2 marks)

(b) The weighted marginal cost of capital (WMCC) for each of the 3 ranges of levels of total financing as determined in (a) above. (10 marks)



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(c) (i) Advise Mavuno Limited on the project(s) to undertake assuming that the projects are divisible. (6 marks)

(ii) Determine the optimal capital budget. (2 marks)

**(Total: 20 marks)**

**QUESTION FOUR**

(a) With reference to corporate valuation, describe the importance of enterprise value (EV). (6 marks)

(b) Huge Ltd. intends to take over Tiny Ltd., another company in the same industry. Tiny Ltd. is expected to post earnings of Sh.86 million next year.

If Huge Ltd. acquires Tiny Ltd., the expected results of Tiny Ltd., for the next three years will be as follows:

| | Year after acquisition | | |
|---|---|---|---|
| | **Year 1** | **Year 2** | **Year 3** |
| | **Sh. "000"** | **Sh. "000"** | **Sh. "000"** |
| Sales | 200,000 | 280,000 | 320,000 |
| Cash costs/expenses | 120,000 | 160,000 | 180,000 |
| Capital allowance | 20,000 | 30,000 | 40,000 |
| Interest charges | 10,000 | 10,000 | 10,000 |
| Cash to replace assets and finance growth | 25,000 | 30,000 | 35,000 |

From year 4 onwards, it is expected that the annual cash flows from Tiny Ltd. will increase by 4% each year into perpetuity.

Tax is payable at the rate of 30% and this tax is paid in the same year the profits to which it relates are earned.

If Huge Ltd. acquires Tiny Ltd., it estimates that the gearing after the acquisition will be 35% measured as the value of debt as a proportion of the total equity and debt. After the acquisition of Tiny Ltd., Huge Ltd. would have a cost of debt of 7.4% before tax and a beta of 1.60.

The risk-free rate is 6% and the return on the market portfolio is 11%.

**Required:**

(i) The offer price for Tiny Ltd., if Huge Ltd. were to value Tiny Ltd. on a forward price earnings (P/E) multiple of 8.0 times. (2 marks)

(ii) The weighted average cost of capital (WACC) for Huge Ltd. after the acquisition of Tiny Ltd. (2 marks)

(iii) The offer price for Tiny Ltd. using a discounted cash flow (DCF) based valuation. (10 marks)

**(Total: 20 marks)**

**QUESTION FIVE**

(a) Discuss four techniques that a company might use to hedge against the foreign exchange risk involved in foreign trade. (8 marks)

(b) Jasper Ltd. is a company based in Nairobi, Kenya which does business with companies based in Tanzania. From such trade, Jasper Ltd. expects the following cash flows in the next six months, in the currencies specified:

| | | |
|---|---|---|
| Payments due in 3 months | : | Ksh.116,000 |
| Receipts due in 3 months | : | Tsh.1,970,000 |
| Payments due in 6 months | : | Tsh.4,470,000 |
| Receipts due in 6 months | : | Tsh.1,540,000 |

The exchange rates in the Nairobi market are as follows:

| | **Tsh/Ksh** |
|---|---|
| Spot | 17.106 – 17.140 |
| Three months forward | 0.82 – 0.77 cents premium |
| Six months forward | 1.39 – 1.34 cents premium |



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| | Interest rates | |
|---|---|---|
| | **Borrowing** | **Lending** |
| Ksh. | 12.5% | 9.5% |
| Tsh. | 9% | 6% |

**Required:**

The net Kenya shilling receipts/payments that Jasper Ltd. might expect for both its three month and six month transactions if the company hedges foreign exchange risk on the:

(i) Forward foreign exchange market. (6 marks)

(ii) Money market. (6 marks)

**(Total: 20 marks)**

.....



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

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

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

* The factor is zero to four decimal places

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

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

| Number of payments | 1% | 2% | 3% | 4% | 5% | 6% | 7% | 8% | 9% | 10% | 12% | 14% | 15% | 16% | 18% | 20% | 24% | 28% | 32% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.9901 | 0.9804 | 0.9709 | 0.9615 | 0.9524 | 0.9434 | 0.9346 | 0.9259 | 0.9174 | 0.9091 | 0.8929 | 0.8772 | 0.8696 | 0.8621 | 0.8475 | 0.8333 | 0.8065 | 0.7813 | 0.7576 |
| 2 | 1.9704 | 1.9416 | 1.9135 | 1.8861 | 1.8594 | 1.8334 | 1.8080 | 1.7833 | 1.7591 | 1.7355 | 1.6901 | 1.6467 | 1.6257 | 1.6052 | 1.5656 | 1.5278 | 1.4568 | 1.3916 | 1.3315 |
| 3 | 2.9410 | 2.8839 | 2.8286 | 2.7751 | 2.7232 | 2.6730 | 2.6243 | 2.5771 | 2.5313 | 2.4869 | 2.4018 | 2.3216 | 2.2832 | 2.2459 | 2.1743 | 2.1065 | 1.9813 | 1.8684 | 1.7663 |
| 4 | 3.9020 | 3.8077 | 3.7171 | 3.6299 | 3.5460 | 3.4651 | 3.3872 | 3.3121 | 3.2397 | 3.1699 | 3.0373 | 2.9137 | 2.8550 | 2.7982 | 2.6901 | 2.5887 | 2.4043 | 2.2410 | 2.0957 |
| 5 | 4.8534 | 4.7135 | 4.5797 | 4.4518 | 4.3295 | 4.2124 | 4.1002 | 3.9927 | 3.8897 | 3.7908 | 3.6048 | 3.4331 | 3.3522 | 3.2743 | 3.1272 | 2.9906 | 2.7454 | 2.5320 | 2.3452 |
| 6 | 5.7955 | 5.6014 | 5.4172 | 5.2421 | 5.0757 | 4.9173 | 4.7665 | 4.6229 | 4.4859 | 4.3553 | 4.1114 | 3.8887 | 3.7845 | 3.6847 | 3.4976 | 3.3255 | 3.0205 | 2.7594 | 2.5342 |
| 7 | 6.7282 | 6.4720 | 6.2303 | 6.0021 | 5.7864 | 5.5824 | 5.3893 | 5.2064 | 5.0330 | 4.8684 | 4.5638 | 4.2883 | 4.1604 | 4.0386 | 3.8115 | 3.6046 | 3.2423 | 2.9370 | 2.6775 |
| 8 | 7.6517 | 7.3255 | 7.0197 | 6.7327 | 6.4632 | 6.2098 | 5.9713 | 5.7466 | 5.5348 | 5.3349 | 4.9676 | 4.6389 | 4.4873 | 4.3436 | 4.0776 | 3.8372 | 3.4212 | 3.0758 | 2.7860 |
| 9 | 8.5660 | 8.1622 | 7.7861 | 7.4353 | 7.1078 | 6.8017 | 6.5152 | 6.2469 | 5.9952 | 5.7590 | 5.3282 | 4.9464 | 4.7716 | 4.6065 | 4.3030 | 4.0310 | 3.5655 | 3.1842 | 2.8681 |
| 10 | 9.4713 | 8.9826 | 8.5302 | 8.1109 | 7.7217 | 7.3601 | 7.0236 | 6.7101 | 6.4177 | 6.1446 | 5.6502 | 5.2161 | 5.0188 | 4.8332 | 4.4941 | 4.1925 | 3.6819 | 3.2689 | 2.9304 |
| 11 | 10.3676 | 9.7868 | 9.2526 | 8.7605 | 8.3064 | 7.8869 | 7.4987 | 7.1390 | 6.8052 | 6.4951 | 5.9377 | 5.4527 | 5.2337 | 5.0286 | 4.6560 | 4.3271 | 3.7757 | 3.3351 | 2.9776 |
| 12 | 11.2551 | 10.5753 | 9.9540 | 9.3851 | 8.8633 | 8.3838 | 7.9427 | 7.5361 | 7.1607 | 6.8137 | 6.1944 | 5.6603 | 5.4206 | 5.1971 | 4.7932 | 4.4392 | 3.8514 | 3.3868 | 3.0133 |
| 13 | 12.1337 | 11.3484 | 10.6350 | 9.9856 | 9.3936 | 8.8527 | 8.3577 | 7.9038 | 7.4869 | 7.1034 | 6.4235 | 5.8424 | 5.5831 | 5.3423 | 4.9095 | 4.5327 | 3.9124 | 3.4272 | 3.0404 |
| 14 | 13.0037 | 12.1062 | 11.2961 | 10.5631 | 9.8986 | 9.2950 | 8.7455 | 8.2442 | 7.7862 | 7.3667 | 6.6282 | 6.0021 | 5.7245 | 5.4675 | 5.0081 | 4.6106 | 3.9616 | 3.4587 | 3.0609 |
| 15 | 13.8651 | 12.8493 | 11.9379 | 11.1184 | 10.3797 | 9.7122 | 9.1079 | 8.5595 | 8.0607 | 7.6061 | 6.8109 | 6.1422 | 5.8474 | 5.5755 | 5.0916 | 4.6755 | 4.0013 | 3.4834 | 3.0764 |
| 16 | 14.7179 | 13.5777 | 12.5611 | 11.6523 | 10.8378 | 10.1059 | 9.4466 | 8.8514 | 8.3126 | 7.8237 | 6.9740 | 6.2651 | 5.9542 | 5.6685 | 5.1624 | 4.7296 | 4.0333 | 3.5026 | 3.0882 |
| 17 | 15.5623 | 14.2919 | 13.1661 | 12.1657 | 11.2741 | 10.4773 | 9.7632 | 9.1216 | 8.5436 | 8.0216 | 7.1196 | 6.3729 | 6.0472 | 5.7487 | 5.2223 | 4.7746 | 4.0591 | 3.5177 | 3.0971 |
| 18 | 16.3983 | 14.9920 | 13.7535 | 12.6593 | 11.6896 | 10.8276 | 10.0591 | 9.3719 | 8.7556 | 8.2014 | 7.2497 | 6.4674 | 6.1280 | 5.8178 | 5.2732 | 4.8122 | 4.0799 | 3.5294 | 3.1039 |
| 19 | 17.2260 | 15.6785 | 14.3238 | 13.1339 | 12.0853 | 11.1581 | 10.3356 | 9.6036 | 8.9501 | 8.3649 | 7.3658 | 6.5504 | 6.1982 | 5.8775 | 5.3162 | 4.8435 | 4.0967 | 3.5386 | 3.1090 |
| 20 | 18.0456 | 16.3514 | 14.8775 | 13.5903 | 12.4622 | 11.4699 | 10.5940 | 9.8181 | 9.1285 | 8.5136 | 7.4694 | 6.6231 | 6.2593 | 5.9288 | 5.3527 | 4.8696 | 4.1103 | 3.5458 | 3 1129 |
| 25 | 22.0232 | 19.5235 | 17.4131 | 15.6221 | 14.0939 | 12.7834 | 11.6536 | 10.6748 | 9.8226 | 9.0770 | 7.8431 | 6.8729 | 6.4641 | 6.0971 | 5.4669 | 4.9476 | 4.1474 | 3.5640 | 3 1220 |
| 30 | 25.8077 | 22.3965 | 19.6004 | 17.2920 | 15.3725 | 13.7648 | 12.4090 | 11.2578 | 10.2737 | 9.4269 | 8.0552 | 7.0027 | 6.5660 | 6.1772 | 5.5168 | 4.9789 | 4.1601 | 3.5693 | 3 1242 |
| 40 | 32.8347 | 27.3555 | 23.1148 | 19.7928 | 17.1591 | 15.0463 | 13.3317 | 11.9246 | 10.7574 | 9.7791 | 8.2438 | 7.1050 | 6.6418 | 6.2335 | 5.5482 | 4.9966 | 4.1659 | 3.5712 | 3.1250 |
| 50 | 39.1961 | 31.4236 | 25.7298 | 21.4822 | 18.2559 | 15.7619 | 13.8007 | 12.2335 | 10.9617 | 9.9148 | 8.3045 | 7.1327 | 6.6605 | 6.2463 | 5.5541 | 4.9995 | 4.1666 | 3.5714 | 3.1250 |
| 60 | 44.9550 | 34.7609 | 27.6756 | 22.6235 | 18.9293 | 16.1614 | 14.0392 | 12.3766 | 11.0480 | 9.9672 | 8.3240 | 7.1401 | 6.6651 | 6.2402 | 5.5553 | 4.9999 | 4.1667 | 3.5714 | 3 1250 |

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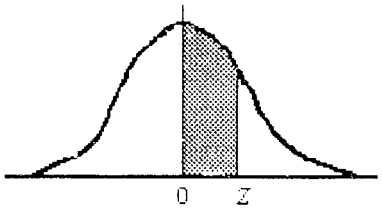
# NORMAL CURVE

AREAS
under the
STANDARD
NORMAL CURVE
from 0 to $z$




| $z$ | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | .0000 | .0040 | .0080 | .0120 | .0160 | .0199 | .0239 | .0279 | .0319 | .0359 |
| 0.1 | .0398 | .0438 | .0478 | .0517 | .0557 | .0596 | .0636 | .0675 | .0714 | .0754 |
| 0.2 | .0793 | .0832 | .0871 | .0910 | .0948 | .0987 | .1026 | .1064 | .1103 | .1141 |
| 0.3 | .1179 | .1217 | .1255 | .1293 | .1331 | .1368 | .1406 | .1443 | .1480 | .1517 |
| 0.4 | .1554 | .1591 | .1628 | .1664 | .1700 | .1736 | .1772 | .1808 | .1844 | .1879 |
| 0.5 | .1915 | .1950 | .1985 | .201 | .2051 | .2088 | .2123 | .2157 | .2190 | .2224 |
| 0.6 | .2258 | .2291 | .2324 | .2357 | .2389 | .2422 | .2454 | .2486 | .2518 | .2549 |
| 0.7 | .2580 | .2612 | .2642 | .2673 | .2704 | .2734 | .2764 | .2794 | .2823 | .2852 |
| 0.8 | .2881 | .2910 | .2939 | .2967 | .2996 | .3023 | .3051 | .3078 | .3106 | 3133 |
| 0.9 | .3159 | .3186 | .3212 | .3238 | .3264 | .3289 | .3315 | .3340 | .3365 | .3389 |
| 1.0 | .3413 | .3438 | .3461 | .3485 | .3508 | .3531 | .3554 | .3577 | .3599 | .3621 |
| 1.1 | .3643 | .3665 | .3686 | .3708 | .3729 | .3749 | .3770 | .3790 | .3810 | .3830 |
| 1.2 | .3849 | .3869 | .3888 | .3907 | .3925 | .3944 | .3962 | .3980 | .3997 | .4015 |
| 1.3 | .4032 | .4049 | .4066 | .4082 | .4099 | .4115 | .4131 | .4147 | .4162 | .4177 |
| 1.4 | .4192 | .4207 | .4222 | .4236 | .4251 | .4265 | .4279 | .4292 | .4306 | .4319 |
| 1.5 | .4332 | .4345 | .4357 | .4370 | .4382 | .4394 | .4406 | .4418 | .4429 | .4441 |
| 1.6 | .4452 | .4463 | .4474 | .4484 | .4495 | .4505 | .4515 | .4525 | .4535 | .4545 |
| 1.7 | .4554 | .4564 | .4573 | .4582 | .4591 | .4599 | .4608 | .4616 | .4625 | .4633 |
| 1.8 | .4641 | .4649 | .4656 | .4664 | .4671 | .4678 | .4686 | .4693 | .4699 | .4706 |
| 1.9 | .4713 | .4719 | .4726 | .4732 | .4738 | .4744 | .4750 | .4756 | .4761 | .4767 |
| 2.0 | .4772 | .4778 | .4783 | .4788 | .4793 | .4798 | .4803 | .4808 | .4812 | .4817 |
| 2.1 | .4821 | .4826 | .4830 | .4834 | .4838 | .4842 | .4846 | .4850 | .4854 | .4857 |
| 2.2 | .4861 | .4864 | .4868 | .4871 | .4875 | .4878 | .4881 | .4884 | .4887 | .4890 |
| 2.3 | .4893 | .4896 | .4898 | .4901 | .4904 | .4906 | .4909 | .4911 | .4913 | .4916 |
| 2.4 | .4918 | .4920 | .4922 | .4925 | .4927 | .4929 | .4931 | .4932 | .4934 | .4936 |
| 2.5 | .4938 | .4940 | .4941 | .4943 | .4945 | .4946 | .4948 | .4949 | .4951 | .4952 |
| 2.6 | .4953 | .4955 | .4956 | .4957 | .4959 | .4960 | .4961 | .4962 | .4963 | .4964 |
| 2.7 | .4965 | .4966 | .4967 | .4968 | .4969 | .4970 | .4971 | .4972 | .4973 | .4974 |
| 2.8 | .4974 | .4975 | .4976 | .4977 | .4977 | .4978 | .4979 | .4979 | .4980 | .4981 |
| 2.9 | .4981 | .4982 | .4982 | .4983 | .4984 | .4984 | .4985 | .4985 | .4986 | .4986 |
| 3.0 | .4987 | .4987 | .4987 | .4988 | .4988 | .4989 | .4989 | .4989 | .4990 | .4990 |
| 3.1 | .4990 | .4991 | .4991 | .4991 | .4992 | .4992 | .4992 | .4992 | .4993 | .4993 |
| 3.2 | .4993 | .4993 | .4994 | .4994 | .4994 | .4994 | .4994 | .4995 | .4995 | .4995 |
| 3.3 | .4995 | .4995 | .4995 | .4996 | .4996 | .4996 | .4996 | .4996 | .4996 | .4997 |
| 3.4 | .4997 | .4997 | .4997 | .4997 | .4997 | .4997 | .4997 | .4997 | .4997 | .4998 |
| 3.5 | .4998 | .4998 | .4998 | .4998 | .4998 | .4998 | .4998 | .4998 | .4998 | .4998 |
| 3.6 | .4998 | .4998 | .4999 | .4999 | .4999 | .4999 | .4999 | .4999 | .4999 | .4999 |
| 3.7 | .4999 | .4999 | .4999 | .4999 | .4999 | .4999 | .4999 | .4999 | .4999 | .4999 |
| 3.8 | .4999 | .4999 | .4999 | .4999 | .4999 | .4999 | .4999 | .4999 | .4999 | .4999 |
| 3.9 | .5000 | .5000 | .5000 | .5000 | .5000 | .5000 | .5000 | .5000 | .5000 | .5000 |

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# KASNEB

## CPA PART III SECTION 5

## ADVANCED FINANCIAL MANAGEMENT

**THURSDAY: 26 November 2015.** **Time Allowed: 3 hours.**

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

**QUESTION ONE**

(a) In the context of financial management, explain what is meant by "stakeholder theory". (6 marks)

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

**Required:**

Compute the percentage change required in each of the following factors for the project to be rejected:

(i) Initial cost of the equipment. (4 marks)
(ii) Scrap value of the equipment. (2 marks)
(iii) Sales revenue. (4 marks)

(c) Evaluate four advantages of employing organic growth strategies. (4 marks)

**(Total: 20 marks)**

**QUESTION TWO**

(a) In most cases, the assumption is that investors are risk-averse, that is, they like returns and dislike risk.

With reference to the above statement, explain why it is argued that only systematic risk and not total risk is important. (4 marks)

(b) In the context of portfolio theory, explain the meaning of "beta coefficient". (2 marks)

(c) The following data have been provided with respect to three shares traded on the Nairobi Securities Exchange (NSE):

| | Share A | Share B | Share C |
|---|---|---|---|
| Risk-free rate of return | 12% | 12% | 12% |
| Beta coefficient | 1.340 | 1.000 | 0.750 |
| Return on the NSE index | 0.185 | 0.185 | 0.185 |

**Required:**

(i) Interpret the beta coefficients of shares A, B and C. (3 marks)
(ii) Using the capital asset pricing model (CAPM), compute the expected return on shares A, B and C. (3 marks)

(d) The following information relates to portfolios P and N:

| | Portfolio P | Portfolio N |
|---|---|---|
| Average return | 35% | 28% |
| Beta | 1.25 | 1.00 |
| Standard deviation | 42% | 30% |
| Non-systematic risk | 18% | 10% |

Assume that the risk free rate is 6% and the average market return is 15%.

**Required:**

(i) Sharpe's performance measure for portfolios P and N. (2 marks)
(ii) Treynor's performance measure for portfolios P and N. (2 marks)
(iii) Jensen's performance measure for portfolios P and N. (2 marks)
(iv) The appraisal ratio for portfolios P and N. (2 marks)

**(Total: 20 marks)**



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**QUESTION THREE**

(a) Comment on the assertion that capital structure is strongly influenced by managerial behaviour. (4 marks)

(b) The finance director of Nyuki Ltd. wishes to estimate what impact the introduction of debt finance is likely to have on the company's overall cost of capital. The company is currently financed by equity only.

**Nyuki Ltd.- Summarised capital structure**

| | Sh."000" |
|---|---|
| Ordinary shares (Sh.2.5 par value) | 5,000 |
| Reserves | 11,000 |
| | 16,000 |

The company's current share price is Sh.4.20 and up to Sh.4 million of fixed rate five-year debt could be raised at an interest rate of 10% per year. The corporate tax rate is 30%.

Nyuki Ltd.'s current earnings before interest and tax are Sh.2.5 million. These earnings are not expected to change significantly for the foreseeable future.

The company is considering raising either Sh.2 million in debt finance or Sh.4 million in debt finance. In either case, the debt finance will be used to repurchase ordinary shares.

**Required:**

Using Modigliani and Miller's model in a world with corporate tax, estimate the impact on Nyuki Ltd.'s weighte average cost of capital of raising:

(i) Sh.2 million in debt finance. (6 marks)

(ii) Sh.4 million in debt finance. (6 marks)

(c) Comment on the accuracy of the estimates produced in (b) (i) and (ii) above. (4 marks)

**(Total: 20 marks)**

**QUESTION FOUR**

(a) (i) Define the term "free cash flow to equity". (2 marks)

(ii) Explain how free cash flow to equity could be used for valuation. (4 marks)

(b) Discuss two advantages and two disadvantages of economic value added (EVA). (4 marks)

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

**Statement of profit or loss extracts for the year:**

| | 2013 Sh."million" | 2014 Sh."million" |
|---|---|---|
| Revenue | 326 | 380 |
| Pre-tax accounting profit | 67 | 84 |
| Taxation | 23 | 29 |
| Profit after tax | 44 | 55 |
| Dividends | 15 | 18 |
| Retained earnings | 29 | 37 |

**Statement of financial position extracts for the year:**

| | 2013 Sh."million" | 2014 Sh."million" |
|---|---|---|
| Non-current assets | 120 | 156 |
| Net current assets | 130 | 160 |
| | 250 | 316 |
| Financed by: | | |
| Shareholders' funds | 195 | 236 |
| Medium and long-term bank loans | 55 | 80 |
| | 250 | 316 |



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**Additional information:**

1. Jasho Ltd. had non-capitalised leases valued at Sh.10 million in each year from 2012 to 2014.
2. Capital employed as per the year 2012 financial statements was Sh.223 million.
3. The pre-tax cost of debt was estimated to be 9% in year 2013 and 10% in year 2014.
4. Jasho Ltd.'s cost of equity was estimated to be 15% in year 2013 and 17% in year 2014.
5. The pre-tax accounting profit is obtained after deducting the economic depreciation of the company's non-current assets. This is also the depreciation used for tax purposes.
6. The target capital structure for Jasho Ltd. is 60% equity and 40% debt.
7. The effective tax rate was 30% in both year 2013 and year 2014.
8. Economic depreciation was Sh.30 million in year 2013 and Sh.35 million in year 2014.
9. Other non-cash expenses were Sh.10 million per year in both 2013 and 2014.
10. Interest expense was Sh.4 million in year 2013 and Sh.6 million in year 2014.

**Required:**

(i) Stating any assumptions made, estimate the economic value added (EVA) of Jasho Ltd. for both year 2013 and year 2014. (8 marks)

(ii) Comment on the performance of Jasho Ltd. (2 marks)

**(Total: 20 marks)**

**QUESTION FIVE**

(a) The main driver of option valuation is the volatility of returns of the associated asset.

Support the above statement. (4 marks)

(b) Explain how triangular arbitrage ensures that currency values are essentially the same in different markets around the world at any given moment. (4 marks)

(c) Granada Ltd., a UK-based company, imports computer components from the Far East. The trading currency is the Singapore dollar (S$) and the value of the deal is S$28 million. Three month's credit is given. The current spot exchange rate is S$2.8 to one sterling pound (£). Because of recent volatility in the foreign exchange markets, Granada Ltd.'s directors are worried that a rise in the value of the S$ could wipe out the profits on the deal. Three alternative hedging methods have been suggested as follows:

- A forward market hedge.
- A money market hedge.
- An option hedge.

Granada Ltd.'s treasurer has provided the following information:

1. The three-month forward rate is S$2.79:£1.
2. Granada Ltd. can borrow Singapore dollars at 2% interest rate per annum and sterling pounds at 5% per annum.
3. Deposit rates are 1% per annum in Singapore and 3% per annum in the UK.
4. A three-month American call option to buy S$28 million at an exercise rate of S$2.785:£1 could be purchased at a premium of £200,000 on the London OTC option market.

**Required:**

(i) Indicate which would be a better hedge between the forward market hedge and the money market hedge. (6 marks)

(ii) Evaluate the option hedge if the following spot rates were applicable in three months' time:

- S$2.78:£1.
- S$2.82:£1.

(6 marks)

**(Total: 20 marks)**

.....



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

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

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

* The factor is zero to four decimal places

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

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

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

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# KASNEB

## CPA PART III SECTION 5

## ADVANCED FINANCIAL MANAGEMENT

## PILOT PAPER

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

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

**QUESTION ONE**

The managers of Kawaida Ltd. are investigating a potential Sh.25,000,000 investment. The investment would be a diversification away from existing mainstream activities into the food manufacturing industry. Sh.6,000,000 of the investment would be financed by internal funds, Sh.10,000,000 by a rights issue and Sh.9,000,000 by long term loans. The investment is expected to generate pretax net cash flows of approximately Sh.5,000,000 per year for a period of ten years. The residual value at the end of year 10 is forecast to be Sh.5,000,000 after tax. As the investment is in an area that the government wishes to develop. a subsidised loan of Sh.4,000,000 out of the total Sh.9,000,000 is available. This will cost 2% below the company's normal cost of long term debt finance which is 8%.

Kawaida Ltd.'s equity beta is 0.85, and its financial gearing is 60% equity and 40% debt by value. The average equity beta in the food manufacturing industry is 1.2 and average gearing 50% equity and 50% debt by market value.

The risk free rate is 5.5% per annum and the market return is 12% per annum.

Issue costs are estimated to be 1% for debt financing (excluding the subsidised loan) and 4% for equity financing. These costs are not tax allowable.

The corporate tax rate is 30%

**Required:**

(a) Estimate the adjusted present value (APV) of the proposed investment. (15 marks)

(b) Comment upon the circumstances under which APV might be a better method of evaluating a capital investment than net present value (NPV). (5 marks)

**(Total: 20 marks)**

**QUESTION TWO**

(a) ABC Ltd., a small manufacturing firm, wishes to acquire a new machine that costs Sh.30,000.

Arrangements can be made to lease or purchase the machine . The firm is in the 40% tax bracket. The firm has gathered the following information about the two alternatives:

**Purchase:** ABC Ltd. can finance the purchase of the machine with a 10%, 6 year loan requiring annual end of year installments. The machine would be depreciated using the reducing balance method. It would have a salvage value of Sh.6,000 after 5 years. The company would pay Sh.1,200 per year for a service contract that covers all maintenance costs. The firm plans to keep the machine and use it beyond its 5 year recovery period.

**Lease:** ABC Ltd. would obtain a 5 year lease requiring annual end-of-year-lease payments of Sh.10,000.

The lessor would pay all maintenance costs. Insurance and other costs will be borne by the lessee.

ABC Ltd. would be given the right to exercise its option to purchase the machine for Sh.3,000 at the end of the lease term.

**Required:**

Advise ABC Ltd. on which alternative to take using suitable computations. (16 marks)

(b) Briefly explain how the arbitrage process may lead to an equilibrium in the financial markets. (4 marks)

**(Total: 20 marks)**



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**QUESTION THREE**

(a) Briefly discuss the meaning and importance of the following terms as used in option pricing:

(i) Delta. (2 marks)

(ii) Theta. (2 marks)

(iii) Vega. (2 marks)

(iv) Rho. (2 marks)

(v) Gamma. (2 marks)

(b) Assume that your company has invested in 100,000 shares of Usaidizi Ltd., a manufacturer of light bulbs. You are concerned about the recent volatility in Usaidizi Ltd.'s share price due to the unpredictable weather in Uganda. You wish to protect your company's investments from a possible fall in Usaidizi Ltd. share price until winter in three months time, but do not wish to sell the shares at present.

No dividends are due to be paid by Usaidizi Ltd. during the next three months.

**Market data:**

- Usaidizi Ltd. current share price: Sh.20
- Call option exercise price: Sh.22
- Time to expiry: 3 months
- Volatility of Usaidizi Ltd. shares 50% (standard deviation per year)

Assume that option contracts are for the purchase or sale of units of 1,000 shares.

**Required:**

(i) Devise a delta hedger that is expected to protect investment against changes in the share price until the weather changes. Delta may be estimated using $N(d_1)$. (8 marks)

(ii) Comment on whether such a hedge is likely to be totally successful. (2 marks)

**(Total: 20 marks)**

**QUESTION FOUR**

Omena Ltd. is a firm in the manufacturing industry. The management of this company are considering purchasing a new machine at a cost of Sh.125 million. This investment is expected to reduce manufacturing costs by Sh.45 million annually. The firm will need to increase its net operating working capital by Sh.12.5 million when the machine is installed, but the required operating working capital will return to the original level when the machine is sold after 5 years.

Omena Ltd. will use the straight line method to depreciate the machines and it expects to sell the machine at the end of 5 years operating life for Sh.11.50 million. The company pays corporation taxes at the rate of 30% and uses 10% cost of capital to evaluate projects of this nature.

**Required:**

(a) The project's net present value. (3 marks)

(b) The firm's management are unsure about the annual savings in operating costs that will occur with the new machines acquisition. Management believes that these savings may deviate from their base case value (Sh.45 million) by as much as a plus or minus 10%.

Determine the net present value of the project under both situations and comment on the sensitivity of this variable. (5 marks)

(c) Suppose the firm's chief finance officer suggest that the firm does a scenario analysis for this project because of the concerns raised about data assumptions, particularly the annual operating cost saving, the salvage value and the net operating working capital (NOWC) requirement. After an extensive analysis, she arrives with the following probabilities and values for the scenario analysis:



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| Scenario | Probability | Annual operating cost saving Sh."000" | Salvage value Sh."000" | NOWC Sh."000" |
|---|---|---|---|---|
| Worst case | 0.4 | 36,000 | 9,000 | 15,000 |
| Base case | 0.4 | 45,000 | 11,500 | 12,500 |
| Best case | 0.2 | 54,000 | 14,000 | 10,000 |

Determine the project's expected net present value (ENPV), standard deviation and its coefficient of variation. (7 marks)

(d) If net present value of this project is less than Sh.5 million, this company will be exposed to a hostile takeover. Determine the probability that this company will avoid a hostile takeover (Assume normal distribution). (5 marks)

**(Total: 20 marks)**

**QUESTION FIVE**

(a) In relation to corporate restructuring and re-organisation, distinguish between the term "demerger" and "spin off". (3 marks)

(b) ABC Ltd.'s investment fund comprises of four major projects, details of which are as follows:

| Stock | Number of shares | Market price per share | Expected return (%) | Standard deviation of return | Correlation with market |
|---|---|---|---|---|---|
| A | 2,000,000 | 30 | 10 | 15 | 0.55 |
| B | 1,000,000 | 25 | 18 | 20 | -0.75 |
| C | 2,000,000 | 20 | 15 | 14 | 0.84 |
| D | 3,000,000 | 25 | 13 | 18 | -0.62 |

The risk free rate of return is 5% and the probability distribution of a market portfolio return are given as follows:

| Probability | Forecasted return of market % |
|---|---|
| 0.2 | 15 |
| 0.15 | 10 |
| 0.30 | 15 |
| 0.25 | 20 |
| 0.10 | 25 |

The variance of return of the market portfolio is 169%.

**Required:**

(i) Using portfolio theory, evaluate whether this portfolio is super-efficient, efficient or inefficient. (6 marks)

(ii) Using the capital asset pricing model (CAPM), advise whether management of this company should change the composition of their portfolio or not. (6 marks)

(c) State and explain any three conceptual differences between portfolio theory and the capital asset pricing model (CAPM). (5 marks)

**(Total: 20 marks)**

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**(Total: 20 marks)**

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# May 2015

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

**QUESTION ONE**

(a) Evaluate four limitations of the Altman's Z-score model for predicting corporate failure (8 marks)

(b) Chuma Ltd. is considering replacing a machine. The existing machine was bought 3 years ago at a price of Sh.50 million. The machine is expected to have a useful life of 5 more years with no scrap value at the end of its useful life. The machine could be disposed of immediately at Sh.35 million. The new machine will cost Sh.80 million with a useful life of 5 years and an expected terminal value of Sh.5 million. With the introduction of the new machine, sales are expected to increase by Sh.25 million per annum over the next five years.

The contribution margin is expected to be 40% and the corporate tax rate is 30%. The operation of the new machine will also require an immediate investment of Sh.8 million in working capital. Installation costs of the new machine will amount to Sh.6 million.

Depreciation is to be provided for on a straight line basis. The company's cost of capital is 12%

**Required:**

Advise the management of Chuma Ltd.on whether to replace the machine. (12 marks)

**(Total: 20 marks)**

**QUESTION TWO**

(a) "Corporate diversification and conglomerate mergers are an experiment in portfolio theory applied to corporations".

Explain the above statement. (4 marks)

(b) Describe how each of the following portfolio performance measures are used:

(i) Treynor's ratio. (2 marks)

(ii) Jensen's alpha. (2 marks)

(c) The risk and return characteristics of two assets are as shown below:

| **Asset** | **A** | **B** |
|---|---|---|
| Expected return | 12% | 20% |
| Risk (standard deviation) | 3% | 7% |

Uchumi Investment Company plans to invest 80% of its available funds in asset A and 20% in asset B. The board of directors of the company believe that the correlation coefficient between the returns of these assets is +0.1.

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**Required:**

(i) The expected return from the proposed portfolio of asset A and asset B. (2 marks)

(ii) The risk of the portfolio. (2 marks)

(iii) Comment on your calculations in part (c) (ii) above in the context of the risk-reducing effects of diversification. (4 marks)

(iv) Suppose the correlation coefficient between the returns of asset A and asset B was -1.0. Demonstrate how Uchumi Investment Company could invest its funds in order to obtain a zero-risk portfolio. (4 marks)

**(Total: 20 marks)**

**QUESTION THREE**

(a) In the context of financial management in the public sector, explain four objectives of performance contracts in Public Sector Entities (PSEs). (8 marks)

(b) Explain the difference between "open-end funds" and "closed-end funds". (4 marks)

(c) A share is currently selling at Sh.120. There are two possible prices of the share after one year: Sh.132 or Sh.105. Assume that the risk-free rate of return is 9% per annum.

**Required:**

The value of a one-year European call option with an exercise price of Sh. 125. (8 marks)

**(Total: 20 marks)**

**QUESTION FOUR**

(a) Explain the following methods of company restructuring and state the circumstances under which each is appropriate:

(i) Sell-offs. (2 marks)
(ii) Carve-outs. (2 marks)
(iii) Spin-offs. (2 marks)

(b) Shuka Ltd., a company that manufactures mobile communication gadgets, intends to acquire Panda Ltd. which is involved in developing communication and networking software.

The following financial information is provided for the two companies:

| | **Shuka Ltd.** | **Panda Ltd.** |
|---|---|---|
| Current share price | Sh.5.80 | Sh.2.40 |
| Number of issued shares | 210 million | 200 million |
| Equity beta | 1.2 | 1.2 |
| Asset beta | 0.9 | 1.2 |

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Free cash flow to the combined company will be Sh.216 million in current value terms and this will increase by an annual growth rate of 5% for the next four years before reverting to an annual growth rate of 2.25% in perpetuity.

The combined operations of the companies will result in cash savings of Sh.20 million per year for the next four years.

The debt to equity ratio of the combined company will be 4:6 in market value terms and it is expected that the combined company's cost of debt will be 4.55%.

Corporation tax of 30% applies to the company. The current risk-free rate is 2% and the market risk premium is 7%. It can be assumed that the combined company's asset beta is the weighted average of the respective companies' asset betas.

**Required:**
Estimate the additional equity value created by combining the two companies based on free cash flows.
(14 marks)
**(Total: 20 marks)**

**QUESTION FIVE**

(a) Explain how inflation rates could be used to forecast exchange rates. (6 marks)

(b) Assume that the spot exchange rate equals 100 Japanese Yen (¥) to one US dollar ($) and the six- month forward rate equals 101 Japanese Yen (¥)) to one US dollar ($). An investor can purchase a Treasury Bill in the United States that matures in six months' time and earn an annual rate of return of 3%.

**Required:**
The annual rate of return on a similar investment in Japan. (4 marks)

(c) You have been provided with the following series of exchange rates for the United States (U.S.) dollar ($), the Canadian dollar (C$) and the British pound (£).

| | |
|---|---|
| $0.6000/C$ | (C$1 .6667/$) |
| $l.2500 /£ | (£0.8000/$) |
| C$2.500/£ | (£0.4000/C$) |

Assume that you have $1,000,000 in cash.

**Required:**
Demonstrate how you could take advantage of these exchange rates to obtain an arbitrage profit
(10 marks)
**(Total: 20 marks)**

# December 2014

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

**QUESTION ONE**

(a) Explain three roles played by sensitivity analysis with specific reference to investment appraisal under uncertainty. (6 marks)

(b) Dibco Ltd. is a manufacturing company which makes a wide range of products. One of these products requires the use of a special machine.

The current policy of Dibco Ltd. is to replace each machine at the end of its useful life of four years. The directors of the company are considering whether to replace the machine more frequently due to the fact that its productivity declines and running costs increase as it gets older.

There is insufficient demand for the company's products manufactured using the machine to justify purchase of a second machine.

Dibco Ltd. sells the products made by the machine at Sh.12.00 each at which price it is able to sell up to 500,000 units per annum. Variable costs, excluding machine depreciation and running costs, amount to Sh.4,00 per unit.

Details of productive capacities and running costs of the machine are as follows:

| **Year of machine Life** | **Productive capacity (units)** | **Running cost Sh "000"** |
|---|---|---|
| 1 | 500,000 | 600 |
| 2 | 500,000 | 650 |
| 3 | 400,000 | 750 |
| 4 | 400,000 | 900 |

The cost of buying the machine is Sh.6,000,000. The resale values of the machine are Sh.4,000,000 for a one-year old machine, Sh.2,500,000 for a two-sear old machine, Sh.1,000,000 for a three-year old machine and zero for a four-year old machine. The company provides depreciation for its non-current assets using the straight line method.

All costs and revenues are paid or received in cash at the end of the year to which they relate except the initial cost of the machine which is paid immediately on purchase. The company has an annual cost of capital of 10%.

**Required:**

Advise the directors of Dibco Ltd. on whether to replace the machine every one, two, three or four years. (14 marks)

**(Total: 20 marks)**

**QUESTION TWO**

(a) Discuss three conceptual differences between the capital asset pricing model (CAPM) and the arbitrage pricing theory (APT). (6 marks)

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(b) An investor is considering investing in the stocks of three companies, A Ltd., B Ltd., and C Ltd. The following information relates to the stocks of the three companies:

| | Sensitivity of stock's returns to changes in: | | |
|---|---|---|---|
| **Company** | **Market index** | **Inflation rate** | **Economic growth rate** |
| A Ltd. | 1.50 | -0.10 | 0.56 |
| B Ltd. | 0.90 | 0.10 | 0.60 |
| C Ltd. | 1.10 | -0.43 | 0.86 |

During the year 2014. it is expected that the market index will increase in performance by 2.5% up from its current 5%. The risk free rate of return in the market will be 6% on average and the inflation and economic growth rates will be 10% and 5.6% respectively.

**Required:**

(i) Expected returns for the three stocks in year 2014 using the capital asset pricing model (CAPM). (3 marks)

(ii) Expected returns for the three stocks in year 2014 using the arbitrage pricing theory (APT). (6 marks)

(iii) State the reason why an investor would gel different return estimates in (b)(i) and (b)(ii) above. (1 mark)

(c) When evaluating public sector project initiatives, it is critical to understand and assess the risks involved. This would help in putting in place a risk management and/or mitigation strategy.
Highlight two categories of risks associated with public sector projects citing how each category of risk could be managed. (4 marks)

**(Total: 20 marks)**

**QUESTION THREE**

(a) The following are the summarised financial statements of Shida Products Ltd., which is facing financial difficulties:

Income statement for the year ended 31 December 2013:

| | **Sh "000"** |
|---|---|
| Turnover | 1,209,000 |
| Earnings before interest and tax (EBIT) | 84,000 |
| Interest | (39,000) |
| Profit before tax | 45,000 |
| Less tax | (15,000) |
| Profit after tax (PAT) | 30,000 |
| Dividends | (33,000) |
| Retained earnings | (3,000) |

**Statement of financial position as at 31 December 2013:**

| | **Sh "000"** | **Sh "000"** |
|---|---|---|
| **Assets** | | |
| **Non-current assets (Net book value)** | | |
| Land and buildings | | 411,000 |
| Plant and machinery | | 384,000 |

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| | | |
|---|---|---|
| Others | | 96,000 |
| | | 891,000 |
| **Current assets** | | |
| Inventory | 303,000 | |
| Trade receivables | 63,000 | |
| Bank balance | 9,000 | 375,000 |
| Total assets | | 1,266,000 |
| | | |
| **Equity and liabilities** | | |
| Ordinary share capital (Sh.25 each) | | 147,000 |
| Retained earnings | | 222,000 |
| | | 369,000 |
| **Current liabilities** | | |
| Trade payables | 381,000 | |
| Taxation | 15,000 | |
| Dividends | 24,000 | 420,000 |
| **Long-term liabilities** | | |
| Bank loan | | 183,000 |
| 10% debentures | | 294,000 |
| Total equity and liabilities | | 1,266,000 |

**Additional information:**

1. Corporation tax rate is 30%.
2. The company's shares are currently trading at Sh.30 per share at the securities exchange.
3. The company's cost of capital is 12%.
4. Interest rate on the bank loan is 12%.
5. The Altman's model for predicting corporate failure is as follows:

$Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6\ X_4 + 1.0\ X_5$

Where:

$X_1$ = Net working capital/total assets

$X_2$ = Retained earnings/total assets

$X_3$ = EBIT/total assets

$X_4$ = Market value of equity/book value of debt

$X_5$ = Revenue/total assets

**Required:**

The company's Z score. Comment on the results. (12 marks)

(b) Other than the Altman's model, evaluate four other ways of predicting corporate failure. (8 marks)

**(Total: 20 marks)**

**QUESTION FOUR**

(a) Analyse the differences between "passive fund management" and "active fund management". (6 marks)

(b) Mijengo Ltd. a company engaged in real estate development, intends to acquire Saruji Ltd., a manufacturer of high quality cement.

Mijengo Ltd. proposes to pay for the acquisition using one of the following three methods:

**Method 1**

A cash offer of Sh.10 per share of Saruji Ltd.

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**Method 2**
An offer of three of Mijengo Ltd.'s shares for two of Saruji Ltd.'s shares.

**Method 3**
An offer of a 2% coupon bond, Sh.100 par at the same yield to maturity as Mijengo Ltd.'s existing bond, in exchange for 8 Saruji Ltd. shares. The bond will be redeemed in three years at par.

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

| | **Mijengo Ltd.** | **Saruji Ltd.** |
|---|---|---|
| | **Sh. "000"** | **Sh. "000"** |
| Revenue | 88,410 | 9,360 |
| Profit before tax | 12,380 | 1,560 |
| Taxation | (2,480) | (310) |
| | 9,900 | 1,250 |
| Dividends | (5,400) | (550) |
| Retained earnings | 4,500 | 700 |
| Non-current assets | 44,900 | 6,700 |
| Current assets | 6,900 | 494 |
| Non-current liabilities | 19,400 | 1,740 |
| Current liabilities | 7,200 | 872 |
| Share capital | 8,800 | 1,000 |
| Reserves | 16,400 | 3,576 |

The current market price is Sh.7.20 per share of Mijengo Ltd. and it is estimated that Saruji Ltd.'s price to earnings ratio is 12.5% higher than Mijengo Ltd.'s current price to earnings ratio. Mijengo Ltd.'s non-current liabilities include a 6% bond (Sh.100 par) redeemable in three years at par which is currently trading at Sh.104. The ordinary shares of Mijengo Ltd. and Saruji Ltd. have a par value of Sh.0.8.

Mijengo Ltd. estimates that it could achieve synergy savings of 30% of Saruji Ltd.'s estimated equity value by eliminating duplicated administrative functions, selling excess non-current assets and reducing the workforce if the acquisition was successful.

**Required:**
Estimate the percentage gain (or loss) on Saruji Ltd's shares under each of the above three payment methods. (14 marks)

**(Total: 20 marks)**

**QUESTION FIVE**

(a) Distinguish between "integration of financial markets" and "segmentation of financial markets". (4 marks)

(b) The introduction of the integrated financial management information systems (IFMIS) has been promoted as a core component of public financial reforms in many developing countries.
Analyse four benefits that could accrue from the implementation of IFMIS, (8 marks)

(c) A European call option trading at the securities exchange has an exercise price of Sh.40. Its maturity date is six months from now. The current stock price is Sh.28 and the instantaneous variance of the return of the underlying asset is 0.5. The risk free rate is 6%.
**Required:**
Use the Black-Scholes option pricing model to compute the value of the call option.

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**Hint:** $C = SN(d_1) - Ee^{-RT} N(d_2)$

$$d_1 = \frac{\ln\left[\frac{S}{E}\right] + \left[R + \frac{\delta^2}{2}\right] t}{\delta\sqrt{t}}$$

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

$$e^{-0.03} = 0.9704$$

(8 marks)

**(Total: 20 marks)**

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# May 2014

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

**QUESTION ONE**

(a) Mr. Akili Mingi holds the following portfolio of four risky assets and a deposit in a risk free asset. The table below shows the respective portfolio weightings and the current returns on the assets, together with their beta coefficients.

| Asset | Weighting (%) | current returns (%) | Beta coefficient |
|---|---|---|---|
| A | 20 | 12.0 | 1.5 |
| B | 10 | 18.0 | 2.0 |
| C | 15 | 14.0 | 1.2 |
| D | 25 | 8.0 | 0.9 |
| Risk-free asset | 30 | 5.0 | 0.0 |

The overall return on the market portfolio of risky assets is 11% and this is expected to continue for the foreseeable future.

**Required:**

(i) The portfolio current return and the portfolio beta. (6 marks)
Briefly comment on these two measures.

(ii) Determine the assets which are inefficient, efficient or super efficient. (6 marks)

(iii) In view of your answer in (a) (ii) above, predict how the future asset values and, hence their rates of return would behave as the market moves towards full equilibrium.

(4 marks)

(b) A fund is split between two securities X and Y. the following data relates to these securities:

Variance for asset Y = $\sigma_Y^2$ = 297.6

Covariance ($COV_{X,Y}$) = - 54

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Variance for asset X = $\sigma^2_X$ = 10

**Required:**

The proportions that an extremely risk - averse individual would place in a portfolio comprising assets X and Y to obtain a minimum standard deviation. (4 marks)

**(Total: 20 marks)**

**QUESTION TWO**

(a) In the context of behavioural finance, explain Festinger's theory of financial cognitive dissonance. (4 marks)

(b) Madara Ltd. is considering investing in one of two mutually exclusive projects. The relevant cash flows of each of the projects are as shown in the table below. The firm's cost capital is 15%. Cash flows accrue at the end of the year.

| | | **Project X (Sh "000")** | **Project Y (Sh."000")** |
|---|---|---|---|
| Initial investment | | 38,500 | 37,000 |
| Cash flows | | | |
| Year: | 1 | 25,000 | 30,000 |
| | 2 | -11,000 | 8,000 |
| | 3 | 20,000 | -4,000 |
| | 4 | 15,000 | 22,000 |
| | 5 | 6,000 | -10,000 |
| | 6 | 5,000 | 15,000 |

**Required:**

Calculate for each project:

(i) Discounted pay back period. (6 marks)

(ii) Modified internal rate of return (MIRR). (6 marks)

(iii) Profitability index. (4 marks)

**(Total: 20 marks)**

**QUESTION THREE**

(a) The National Treasury (or equivalent institution in your country), is required to manage the national government's public finances in accordance with the Constitution and the principles of fiscal responsibility.

**Required:**

Discuss any two principles of fiscal responsibility. (4 marks)

(b) Ethical behavior is necessary for achieving a firm's goal of owners' wealth maximization.

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**Required:**
Comment on the above statement. (2 marks)

(c) The Focus Fund is a mutual fund that holds long-term positions in a small number of non-divided paying stocks. Their holdings at the end of two recent years are as follows:

| | **Year 2012** | | **year 2013** | |
|---|---|---|---|---|
| **Stock** | **Number of share** | **Price (Sh.)** | **Number of shares** | **Price (Sh.)** |
| A | 100,000 | 45.25 | 100,000 | 48.75 |
| B | 225,000 | 25.38 | 225,000 | 24.75 |
| C | 375,000 | 14.50 | 375,000 | 12.38 |
| D | 115,000 | 87.13 | 115,000 | 98.50 |
| E | 154,000 | 56.50 | 154,000 | 62.50 |
| F | 175,000 | 63.00 | 175,000 | 77.00 |
| G | 212,000 | 32.00 | 212,000 | 38.63 |
| H | 275,000 | 15.25 | 275,000 | 8.75 |
| I | 450,000 | 9.63 | 450,000 | 27.45 |
| J | 90,000 | 71.25 | 90,000 | 75.38 |
| K | 87,000 | 42.13 | 87,000 | 49.63 |
| L | 137,000 | 19.88 | 0 | 27.88 |
| M | 0 | 17.75 | 150,000 | 19.75 |
| | | **Sh.** | | **Sh.** |
| Cash | | 3,542,000 | | 2,873,000 |
| Expenses | | 730,000 | | 830,000 |

At the end of each year, the Focus Fund had 5,430,000 shares outstanding.

**Required:**
(i) The net asset value (NAV) for a share of Focus Fund at the end of year 2012 (include the cash position in the total portfolio value). (4 marks)

(ii) Net asset value (NAV) for the year 2013 and the growth rate in the fund share value on a percentage basis assuming that Focus Fund sold its position in stock L and purchased its position in stock M immediately after calculating its year 2012 NAV (both transactions were done at year 2012 prices). (4 marks)

(iii) The number of fund shares of the Focus Fund that the manager could redeem at the end of year 2013 without having to liquidate her stock positions (that is, using only the cash account). (2 marks)

(d) Describe how managers of firms experiencing financial distress might jeopardize the investments of bondholders with the "games" of asset substitution and underinvestment. (4 marks)

**(Total: 20 marks)**

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**QUESTION FOUR**

(a) Differentiate between "futures contracts" and "forward contracts". (4 marks)

(b) Evaluate the wisdom of hedging interest rate risk using an interest rate collar instead of an option. (4 marks)

(c) Explain how "basis risk" arises. (4 marks)

(d) A stock currently sells for Sh.36. in the next six months, the stock price will either increase to Sh.42 or decrease to Sh.31. the risk-free rate is 4% per year.

**Required:**

Calculate the current market price of a call option on the above stock if its term to expiration is six months and its strike price is Sh.35. (8 marks)

**(Total: 20 marks)**

**QUESTION FIVE**

(a) Explain the following terms:

(i) locational arbitrage. (2 marks)

(ii) Triangular arbitrage. (2 marks)

(b) The following information is provided about the current spot exchange rate between the United States (US) dollar ($) and the British pound (£), inflation rates in Britain and the United States, and the real rate of interest:

| | |
|---|---|
| Current spot rate | = $1.4500/£ |
| U.S. inflation rate | = 1.5% per year |
| British inflation rate | = 2.0% per year |
| Real rate of interest | = 2.5% |

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**Required:**
Using the parity conditions of international finance:

(i) Compute the expected spot rate in one year's time. (2 marks)

(ii) Assuming that you could borrow $1,000,000 or £689,700 at the risk-free interest rate, demonstrate how you can make an arbitrage profit if you were offered the chance to sell or buy British pounds (£) forward (for delivery one year from now) at the current spot rate of $1.4500/£ (6 marks)

(c) Explain four reasons why mergers and acquisions fail. (8 marks)

**(Total: 20 marks)**

# DECEMBER 2013

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

**QUESTION ONE**
X is a government-owned business engaged in the manufacture and distribution of chemical products for which there is an increased demand. Heavy capital expenditure is necessary each year.

The financial year of the business runs to 31 March. As at 31 March, the net assets of the business (after deducting a small amount of external loans) were represented entirely by reserves. On 1 April 2013, the business was reconstituted as a commercial company, X Ltd., with an authorized capital of 400 million ordinary shares of Sh.25 each. Four million ordinary shares were issued for cash at par to the government.

It was decided that further ordinary shares (number not yet agreed) should be issued to the government, credited as fully paid by capitalization of part of the reserves, on 1 December 2013 and that 95% of the total number of ordinary shares then in issue should be offered to the public at a price of Sh.140 per share

The prospectus being prepared in connection with this offer contains the following information about profit after tax:

| | |
|---|---|
| Actual-year to 31 March 2013 | Sh.5,250.8 million |
| Forecast-year to 31 March 2014 | Sh.4,208.7 million |

There is a disagreement, however, about the amount of ordinary share dividend to be forecast for the year to March 2014 and the number of ordinary shares to be issued.

The board of the company proposes a dividend of Sh.1,932 million which it considers would make possible a public issue of 285 million ordinary shares. The advisors to the government, however, suggest that a dividend of Sh.2,125.6 million be forecast and claim that this would enable a proportionately large number of shares to be issued.

**Required:**
(a) Evaluate the significant aspects of each of the two proposals above. (14 marks)
(**Hint:** As part of your analysis, calculate each proposals's earnings per share, price earning ratio and dividend yield).

(b) Explain any three pieces of additional information that would be required by prospective shareholders. (6 marks)

**(Total: 20 marks)**

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**QUESTION TWO**

(a) R Ltd is considering a project with the following cash flows:

| year | Cost of plant Sh."000" | Running costs Sh."000" | Savings Sh."000" |
|---|---|---|---|
| 0 | 10,000 | | |
| 1 | | 4,000 | 12,000 |
| 2 | | 5,000 | 14,000 |

R Ltd's cost of capital is 9%

**Required:**

(i) Determine the sensitivity of the project to changes in the levels of cost of plant, running costs and savings (considering each factor at a time) and assuming each factor is varied adversely by 10%. (8 marks)

(ii) Comment on the factor which is most sensitive to adverse variations. (2 marks)

(b) Tajiri Ltd. is considering investment in three risky projects namely; projects A, B and C. the following information relates to the three projects:

**Project A**

This project will require an initial investment of Sh.50,000,000. The estimated annual net cash inflows over the next five years under the three states of nature are as follows:

| State of nature | Probability | Amount Sh."000" |
|---|---|---|
| Most pessimistic | 0.25 | 13,500 |
| Most likely | 0.50 | 18,000 |
| Most optimistic | 0.25 | 20,000 |

Concerns have been raised about the possibility that this project will infringe on a competitor's patent. If this was the case and the competitor successfully pursued a claim for damages, the competitor may have to be paid as much as Sh.100,000,000 in the third year. Lawyers estimate that there is only a 0.1 probability that this will happen.

**Project B**

This project will require an initial outlay of Sh.50,000,000 spread in equal instalments over the next three years to finance a research project. If this project is successful and there is a probability of 0.5 of this happening, it will lead to issuance of a patent right with an estimated value at the end of the three years of Sh.200,000,000. If not successful, the whole of the expenditure would have to be written off.

**Project C**

This project will have an initial cost of Sh.20,000,000 and is expected to yield annual cash flows of Sh.8,000,000 in each of its first two years. Thereafter, the outcome is so uncertain that no estimate can be given.

The company's cost of capital is 14% per annum.

**Required:**

Advise Tajiri Ltd. on whether they should undertake the projects above. (10 marks)

**(Total: 20 marks)**

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**QUESTION THREE**

(a) Evaluate any four assumptions on which the capital asset pricing model (CAPM) is based clearly indicating how far they hold true in practice. (8 marks)

(b) H Ltd. has a portfolio of capital projects which yield an average expected rate of return of 15 per cent per annum. This return is subject to risk and this is estimated as a standard deviation of the probabilities of expected returns of 2.5 per cent. The risk free rate of interest is 6 per cent per annum.

Three projects have come up for consideration by the board of directors and these are designated M, N and O. details of the estimates made for them appear below:

| | Project | | |
|---|---|---|---|
| | **M** | **N** | **O** |
| Expected return | 10% | 8% | 6% |
| Risk (standard deviation of the probability distribution) | 1% | 1.2% | 2.4% |
| Coefficient of correlation of project returns with portfolio returns | 0.58 | 0.89 | -0.1 |

**Required:**
Using the capital asset pricing model (CAPM), advise H Ltd. on the project (s) to accept or reject. (8 marks)

(c) Evaluate any two distinct activities that are involved in portfolio monitoring and rebalancing. (4 marks)

**(Total: 20 marks)**

**QUESTION FOUR**

(a) In the context of the Public Finance Management Act 2012 (or equivalent legislation in your country), describe the conditions under which the national government could refuse to disburse funds to the county governments. (8 marks)

(b) X Ltd. is contemplating the purchase of Y Ltd. X Ltd. has 3,000,000 shares outstanding each having a market price of Sh.30 per share. Y Ltd. has 2,000,000 shares outstanding each having a market value of Sh.20 per share. The earnings per share (EPS) for X Ltd. and Y Ltd are Sh.4.00 and Sh.2.25 respectively.

The managements of both companies are discussing two alternative proposals for exchange of shares as indicated below:

**Proposal 1**
In proportion to the relative earnings per share of the two companies.

**Proposal 2**
Half of a share of X Ltd for one share of Y Ltd.

**Required:**

(i) The EPS after the merger under each of the alternatives. (6 marks)

(ii) An evaluation of the impact of EPS for the shareholders of the two companies under each of the alternatives. (6 marks)

**(Total: 20 marks)**

**QUESTION FIVE**

(a) Evaluate the continued justification in the operations of the Eurocurrency market. (4 marks)

(b) Explain the salient differences between Argenti's model and Taffler's model in their utility in predicting corporate failure. (6 marks)

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(c) A US Company needs to pay its German supplier € 1.2 million in 90 days' time. The current spot rate is $1.2582: €1 and the 90 day forward rate is $1.2636:€1. A call option on the Euro expiring in 90 days has an exercise price of $1.26 and a premium of $0.0098. the option is only exercisable at the end of the period. The forecast of the future spot rate is $1.25.

**Required:**
Evaluate how much the US Company will pay its German supplier under each of the following alternatives:

(i) No hedging takes place. (2 marks)
(ii) Arranging a forward contract hedge. (2 marks)
(iii) Arranging an option hedge. (3 marks)

(d) With reference to the Guidelines on Corporate Governance Practices by Public Listed Companies in your country, highlight three key corporate governance requirements with respect to fixing of directors' remuneration. (3 marks)

**(Total: 20 marks)**

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# JUNE 2013

## QUESTION ONE

(a) Differentiate between the following terms as used in hedge fund investments:

(i) "Equity market neutral hedge fund" and "convertible arbitrage hedge fund". (2 marks)

(ii) "Fixed income arbitrage hedge fund" and "global hedge fund". (2 marks)

(b) A financial analyst intends to estimate the sustainable growth rate for XYZ Ltd. the following data was extracted from the financial statements of XYZ Ltd. for the year ended 31 December 2012:

| | Sh. |
|---|---|
| Net income | 17,138,000 |
| Sales | 204,892,000 |
| Total assets | 132,628,000 |
| Shareholder's equity | 68,935,000 |
| Earnings per share | 7.80 |
| Dividend per share | 2.01 |

**Required:**
The sustainable growth rate for XYZ Ltd. (5 marks)

(c) Ribe Ltd. is planning to divest itself of unrelated divisions which have in the past been making relatively lower returns on assets. As a result of this process, the return on equity is expected to increase from 10% to 15%. The debt equity ratio is 0.3 while the retention rate is 50%. The company's tax rate is 30%.

**Required:**
Assess the effect of the planned divesture on the earnings growth. (5 marks)

(d) Researchers at Annex Electrical Ltd have invented a new television model. The company is ready for pilot production and test marketing within six months at a cost of Sh.40 million. It is expected that there is a 70% chance of pilot production and test marketing being successful. In case of success, Annex Electrical Ltd. can build a plant at a cost of Sh.300 million.

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The plant will generate an annual cash flow of Sh.60 million for 20 years if demand is high or an annual cash flow of Sh.40 million if demand is low. A high demand has a probability of 0.6. The company's required rate of return is 12%.

**Required:**

Advise the management of Annex Electrical Ltd. on the best course of action. (6 marks)

**(Total: 20 marks)**

**QUESTION TWO**

(a) The following information relates to call and put options on a stock:

Call price, $C_o$ = Sh.4.50
Put price, $P_o$ = Sh.6.80
Exercise price, $X_o$ = Sh.70
Current stock price, $S_o$ = Sh.67.32
Days to option expiration = 139 days
Risk free rate, $r_f$ = 5%

**Required:**

Using the put-call parity, determine the prices of the following:

(i) Synthetic call option. (2 marks)

(ii) Synthetic put option. (2 marks)

(iii) Synthetic bond. (2 marks)

(iv) Synthetic underlying stock. (2 marks)

(b) Identify any mispricing for each of the synthetic instruments in (a) (i) – (iv) above (2 marks)

(c) Kalama Chivuva, the managing Director of Dede Ltd., has just ended a meeting with an investment analyst who suggested that the company's shares are overvalued by 10%. The data used by the investment analyst is shown below:

| **Year** | **Total dividend Sh. "000"** | **Number of shares "000"** | **Total earnings Sh. "000"** |
|---|---|---|---|
| 2009 | 5,680 | 28,560 | 18,260 |
| 2010 | 6,134 | 28,600 | 21,320 |
| 2011 | 8,108 | 35,000 | 26,710 |
| 2012 | 10,007 | 40,000 | 28,620 |

Dede Ltd's current market share price is Sh.6.45 and the cost of equity is 12.5%.

**Required:**

(i) The intrinsic value of Dede Ltd.'s share. (3 marks)

(ii) Advise the management of Dede Ltd. on whether the company's shares are overvalued. (1 mark)

(d) The current earnings per share (EPS) of Baraka Ltd. is Sh.2.00. The company has an asset beta of 0.981 and a retention rate of 0.5. The risk free rate is 5% and the equity market risk premium is 6%. The management of Baraka Ltd. intends to undertake a reconstruction which will result in a debt-equity ratio change from 0.12 to 0.30.

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**Required:**
Show the impact of the increase in the debt-equity ratio on the share price. (6 marks)
**(Total: 20 marks)**

**QUESTION THREE**

(a) Explain the following in relation to the international capital market.

(i) Three primary drivers of the international capital market. (3 marks)

(ii) Three motives of investing in the international capital market. (3 marks)

(b) Blades Ltd. is considering diversifying its operations away from its main areas of business (food manufacturing) into the plastic business. The company wishes to evaluate an investment project which involves acquisition of a moulding machine that costs Sh.450,000,000. The project is expected to produce net annual operating cash flows of Sh.220,000,000 for each of the three years of its useful life. Its salvage is zero.

The assets of the project will support debt finance of 40% of its initial cost (including issue cost). The loan is to be repaid in three equal annual installments. The balance of finance will be provided by placing of new equity. Issue costs will be 5% for the equity and 2% for the loan. Debt issue costs are allowable for tax.
The plastic industry has an average equity beta of 1.368 and an average debt to equity ratio of 1:5 at market values. Blades Ltd.'s current equity beta is 1.8 and 20% of its long term capital is represented by debt which is generally regarded to be risk-free.

The risk-free rate is 10% per annum and the expected return on an average market portfolio is 15%. Corporate tax is at 30%. The machine will attract a 70% initial capital allowance and the balance will be written off evenly over the remainder of the asset's life and will be allowable against tax. The firm is certain that it will earn sufficient profits against which to offset these allowances.

**Required:**
Using adjusted net present value, advise whether or not the project is worthwhile. (10 marks)

(c) David Majimbo is evaluating a project with a one year life and expected cash flow of Sh.5,000,000 receivable at year end. Shareholders require a return of 12%. The risk free rate is 6%.

**Required:**
Certainty equivalent coefficient. Interpret your result. (4 marks)
**(Total: 20 marks)**

**QUESTION FOUR**

(a) Betty Muye has invested 75% of her funds in shares of company X and 25% in shares of company Y. the following probability distribution relates to the shares of the two companies:

| **State of economy** | **probability** | **return on Company X shares (%)** | **return on Company Y shares (%)** |
|---|---|---|---|
| Boom | 0.2 | 24 | 5 |
| Steady growth | 0.6 | 12 | 30 |
| Slump | 0.2 | 0 | -5 |

**Required:**

(i) Expected returns on the shares of companies X and Y. (2 marks)

(ii) Standard deviation of returns on shares of companies X and Y. (2 marks)

(iii) Coefficient of correlation between the returns on shares of companies X and Y. (2 marks)

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(iv) Expected portfolio return. (1 mark)

(v) Portfolio risk. (3 marks)

(b) Superstar Ltd. wishes to estimate its equity beta. The financial analyst of the company has recorded the following information for the year 2012:

| **Month** | **return on market portfolio (%)** | **return on company equity (%)** |
|---|---|---|
| January | 2 | 3 |
| February | -1 | -2 |
| March | 3 | 4 |
| April | 0 | 1 |
| May | 2 | 2.5 |

The following data has been calculated from the above financial information:

Variance on return on market portfolio ($\sigma^2_m$) = 2.16
Variance on the return of company equity of superstar Ltd. ($\sigma^2_s$) = 4.36
Correlation coefficient between market returns and superstar Ltd.'s equity return ($\rho_{m,s}$) = 0.96

**Required:**

(i) Equity beta of the company. (3 marks)

(ii) Using the capital asset pricing model (CAPM), determine the required rate of return on Superstar Ltd.'s share. Assume the risk free rate is 10% per annum and the return on market portfolio for the same period is 14%

(c) Explain the implications of the following in relation to ethical conduct of financial managers:

(i) Balancing act. (2 marks)

(ii) Whistle blowers' rights. (2 marks)

**(Total: 20 marks)**

**QUESTION FIVE**

(a) (i) Explain the term "value gaps" as used in mergers. (2 marks)

(ii) Discuss four factors that could give rise to value gaps in mergers. (8 marks)

(b) In relation to relation to financial distress, contrast between "stock based insolvency" and "flow based insolvency". (4 marks)

(c) Texas Ltd. is considering making a bid for the entire equity capital of Vexas Ltd. Vexas Ltd. has a price-earnings (P/E) ratio of 9 and total earnings of Sh.390 million.

Texas Ltd. has a price-earnings (P/E) ratio of 13 and total earnings of Sh.693 million. It is expected that Sh.125 million of synergistic savings will be made as a consequence of the takeover. The price-earning ratio of the combined company is expected to be 12.

**Required:**

(i) Minimum value acceptable to Vexas Ltd. shareholders. (2 marks)

(ii) The maximum amount Texas Ltd. should consider paying. (4 marks)

**(Total: 20 marks)**

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# December 2012

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

## QUESTION ONE

(a) Examine four statutory protections available to shareholders in mitigating against negative consequences of the agency problems arising between them and managers. (4 marks)

(b) Ematex Ltd. has a budget of Sh.240 million for investment in various projects. The finance manager has presented the following proposals for immediate investment. The first cash return is expected in 12 months and at annual intervals thereafter.

| Project | 2012 Sh.'million' | 2013 Sh.'million' | 2014 Sh.'million' | 2015 Sh.'million' | 2016 Sh.'million' | 2017 Sh.'million' | 2018 Sh.'million' | Net present Value (NPV) (Sh.'million) | Internal rate of return (IRR) % |
|---|---|---|---|---|---|---|---|---|---|
| A | (124) | 56 | 80 | 24 | - | - | - | 11 | 16 |
| B | (128) | 16 | 24 | 40 | 42 | 84 | (6) | 13.8 | 13 |
| C | (48) | 24 | 24 | 12 | 2 | - | - | 4 | 15 |
| D | (200) | 60 | 100 | 50 | 58 | - | - | 14.4 | 13 |
| E | (24) | 5 | 11 | 15 | 4.2 | - | - | 3.8 | 17 |
| D | (80) | 49 | 50 | - | - | - | - | 5.8 | 15 |

There is no option to delay any of the projects. All projects except project A can be scaled down but cannot be scaled up. The company has a current cost of finance of 10% but it would take one year to establish further funding at that rate. Further funding for short periods could be arranged at a higher interest rate.

**Required:**

(i) The projects that should be undertaken in the order of their priority. (6 marks)

(ii) The net present value (NPV) and the internal rate of return (IRR) for the projects undertaken. (4 marks)

(iii) Estimate and advise on the maximum interest rate that the company should pay to finance all the remaining projects available. (6 marks)

**(Total: 20 marks)**

## QUESTION TWO

(a) Briefly explain four strategies which might be open to a company intending to avoid being acquired by another company. (4 marks)

(b) Distinguish between the following terms as used in corporate reorganization and capital reconstruction:

(i) Divestment and unbundling. (2 marks)

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

(c) Best food Ltd. is a food processing firm which is 100% equity financed. The company's board of directors are considering diversifying their operations by entering into the customer electronics industry.

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**Additional information:**

1. The current equity beta is 1.2 and 1.6 for best food Ltd. and electronic firms respectively.
2. The gearing in the electronic industry averages 30% debt and 70% equity.
3. Return on market is 25%
4. The risk free rate is 10%.

Assume a corporation tax rate of 30%.

**Required:**

Determine the suitable discount rate for the new investment if the directors were to finance the new project as follows:

(i) 30% debt and 70% equity. (4 marks)
(ii) Entirely by equity. (4 marks)
(iii) 40% debt and 60% equity. (4 marks)

**(Total: 20 marks)**

**QUESTION THREE**

(a) Ethical responsibility arises not as a result of legal requirement but as a moral imperative for companies to operate in an ethical and fair manner.

Discuss the main elements through which ethical responsibility of a company is discharged. (8 marks)

(b) Galaxy Limited is an all equity financed company with a cost of capital of 18.5%. The company is considering the following capital investment projects:

| **Project** | **Initial outlay** | **Expected cash flows** | **Beta** |
|---|---|---|---|
| | | **In one year** | |
| | **Sh. "000"** | **Sh. "000"** | |
| A | 1,000 | 1,095 | 0.3 |
| B | 1,000 | 1,130 | 0.5 |
| C | 1,500 | 1,780 | 1.0 |
| D | 2,000 | 2,385 | 1.5 |
| E | 2,000 | 2,400 | 2.0 |

The risk free rate is 8% and the expected return on an average market portfolio is 15%.

**Required:**

(i) Using the Capital Asset Pricing Model (CAPM), show the projects that are acceptable. (6 marks)
(ii) Galaxy Limited's beta factor. (2 marks)
(iii) Show the projects that would be accepted and rejected if they were discounted at the firm's cost of capital. Highlight those projects where an incorrect decision would be made. (4 marks)

**(Total: 20 marks)**

**QUESTION FOUR**

(a) A recent study of the independence of the Auditor General found that notwithstanding formal regulation designed to assure independence of the auditor, there remains many avenues by which the executive could influence an Auditor General:

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**Required:**
Evaluate six major legislative factors affecting the auditor's independence that have been identified within the statutory framework in your country. (6 marks)

(b) A United States firm has concluded a deal to sell heavy earth moving equipment to a British Company for Pound Sterling (£) 1,000,000.

The chief financial officer of the United States firm has collected the following financial and market data for the analysis of her currency exposure:

| | |
|---|---|
| Spot exchange rate: | $1.7640/£ |
| Three month forward rate: | $1.7540/£ |
| United States firm's cost of capital: | 12% |
| United Kingdom three month borrowing interest rate: | 10% per annum |
| United Kingdom three month investment interest rate: | 8% per annum |
| United States three month borrowing interest rate: | 8% per annum |
| United States three month investment interest rate: | 6% per annum |

The united States Company's foreign exchange advisory service forecasts that the spot rate in 3 months will be $1.76/£

**Required:**
Use the following techniques to hedge the United States firm's against foreign exchange exposure:

(i) Forward market. (4 marks)
(ii) Money market. (4 marks)

(c) Safariland Ltd. is a quoted company in the securities exchange dealing in food processing. The company has followed a policy of paying out a steadily increasing dividend per share (DPS) as shown below:

| Year | Earnings per share (EPS) Sh. | Dividend per share (DPS) Sh. | Dividend cover |
|---|---|---|---|
| 2008 | 11.80 | 5.00 | 2.4 |
| 2009 | 12.50 | 5.50 | 2.3 |
| 2010 | 14.60 | 6.00 | 2.4 |
| 2011 | 13.50 | 6.50 | 2.1 |
| 2012 | 16.00 | 7.30 | 2.2 |

**Additional information:**
1. Safariland Ltd. has just paid the year 2012 dividends hence the shares are quoted ex-dividend.
2. In the year 2013, additional financing for undertaking new projects will be provided from internal funds which will result in a lower dividend per share of Sh.5.
3. The new investment projects will increase the company's growth rate to 14 per cent: however, some managers feel that the new growth rate is unlikely to exceed 12 per cent.
4. The shareholders of Safariland Ltd. seek an overall return of 16 per cent.

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**Required:**

(i) Using the dividend growth model, determine the market price per share for Safariland., prior to the change in policy. (2 marks)

(ii) Assess the likely impact of the proposed policy change on Safariland Ltd.'s share price. (2 marks)

(iii) Determine the break-even growth rate in dividend per share (DPS). (2 marks)

**(Total: 20 marks)**

**QUESTION FIVE**

(a) Explain the following terms in relation to funds management:

(i) Open-end funds. (2 marks)
(ii) Closed-end funds. (2 marks)
(iii) Balanced fund. (2 marks)

(b) Suppose that you work for Santina Fund Management (SFM) and you are responsible for the pension fund management section. Currently, the pension fund available for investment stands at Sh.15,000,000. The one year cap has a cap rate of 8%. The frequency of settlement is quarterly and the reference rate is the 3-month Treasury bill rate. For the next four quarters, the 3-month Treasury bill rates are as follows:

| Quarter | | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| 3-month Treasury bill rate | 8.7% | 8.0% | 7.8% | 8.2% | |

**Required:**

Using the above information, discuss the feasibility of a payoff supporting your argument with relevant calculations. (6 marks)

(c) (i) Explain the term "market segmentation" in the context of capital markets. (2 marks)
(ii) Describe six main causes of capital markets segmentation. (6 markets)

**(Total: 20 marks)**

……..

# May 2012

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

**QUESTION ONE**

(a) Classical economists long advanced for "profit maximization" as the financial rational goal of the firm but modern financial theorists favour "shareholders" wealth maximization".

**Required:**

(i) Justify the view of modern finance theory on the financial goal of the firm by giving three reasons. (3 marks)

(ii) Citing three arguments, criticize "shareholder's wealth maximization" as the financial goal of the firm. (3 marks)

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(b) Discuss three parties involved in the organization and operations of a pension fund. (6 marks)

(c) Kikopy Limited, a Kenyan company, has a substantial proportion of its trade with Ugandan and Tanzanian companies. It has recently invoiced a Tanzanian company the sum of Tsh.5,000,000 receivable in one year's time. The finance director of Kikopy Limited is considering two methods of hedging the exchange risk.

**Method 1**

Use of money market instruments

**Method 2**

Use of forward exchange contract where the spot exchange rate and the 12 months forward exchange rates respectively are:

| | |
|---|---|
| Spot | Ksh.1 = Tsh.1.4455 |
| Forward | Ksh.1 = Tsh.1.4165 |

The annual interest rates are:

| | |
|---|---|
| Tanzania | 3.5% |
| Kenya | 5.75% |

**Required:**

(i) Net proceeds in Kenya shillings under both methods. (6 marks)

(ii) Based on your answer in (c) (i) above, advice the management of Kikopy Limited on the more advantageous method of hedging the exchange risk. (2 marks)

**(Total: 20 marks)**

**QUESTION TWO**

(a) Outline four aims of regulating financial markets in your country. (4 marks)

(b) As a newly appointed finance manager of Tena Ltd., you are required to choose between the following mutually exclusive projects:

| | **Net cash flows in millions of shillings** | |
|---|---|---|
| **Year** | **project A** | **project B** |
| 0 | (250) | (1,000) |
| 1 | 200 | 300 |
| 2 | 500 | 400 |
| 3 | | 600 |
| 4 | | 500 |

The company's cost of capital for projects under similar risk levels is 12%.

**Required:**

(i) The net present value (NPV) of each project using the constant scale finite period replication criteria. (3 marks)

(ii) Annual equivalent (AEV) of each project. (3 marks)

(iii) Make a decision on which project to undertake. (2 marks)

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(c) With reference to the derivatives markets, evaluate four differences between "futures contracts" and "forward contracts". (8 marks)

**(Total: 20 marks)**

**QUESTION THREE**

(a) Leila Ltd. is a hot air balloon manufacturer whose equity to debt ratio is 5:2. the corporate debt which is assumed to be risk free, has a gross redemption yield of 11%. The beta value of the company's equity is 1.1. The average return on the stock market is 16% and the tax rate is 30%.

The company is considering to undertake a boat manufacturing project. Kaks Limited is a boat manufacturing company. It has an equity beta of 1.59 and an equity to debt ratio of 2:1. Leila Ltd. will finance the project to maintain its existing capital structure.

**Required:**

Compute the cost of capital to be applied in the project. (10 marks)

(b) The financial manager of Top Ltd. expects earnings before interest and tax (EBIT) of Sh.5,000,000 in the current financial year. The company pays interest of 10% per annum on a long-term loan of Sh.20,000,000. the company has 1,000,000 ordinary shares and the corporate tax rate is 30%. The finance manager is currently examining two scenarios:

**Scenario 1:** A case where earnings before interest and tax (EBIT) is 25% less than expected.

**Scenario 11:** A case where earnings before interest and tax (EBIT) is 25% higher than expected.

**Required:**

(i) Earnings per share (EPS) under scenario 1 and scenario 11 and when there is no change in the expected earnings before interest and tax (EBIT). (6 marks)

(ii) Degree of financial gearing for both scenario 1 and scenario 11. (4 marks)

**(Total: 20 marks)**

**QUESTION FOUR**

(a) Describe by giving three reasons, how the financial management of an organization in the public sector differs from that of an organization in the private sector. (6 marks)

(b) Mavuno Limited expects to record earnings per share (EPS) of Sh.300 during the year 2012, while the target dividend payout ratio is 0.6. The adjustment rate is 0.7. The dividend per share for the year 2011 was Sh.1.20.

Using the Lintner dividend model, determine the dividend per share (DPS) of Mavuno Limited for the year 2012. (4 marks)

(c) Mtungi Limited is planning to acquire Kibuyu Limited. The following information is available with respect to the two companies:

| | **Mtungi Limited** | **Kibuyu Limited** |
|---|---|---|
| Total current earnings | Sh.50 million | Sh.20 million |
| Number of outstanding shares | 20 million | 10 million |
| Market price per share (MPS) | Sh.30 | Sh.20 |

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**Required:**

(i) The maximum exchange ratio acceptable to the shareholders of Mtungi Limited if the price earnings ratio of the combined entity is 12. (3 marks)

(ii) The maximum exchange ratio from the point of view of the shareholders of Kibuyu Limited. (3 marks)

(d) Analyse four benefits that accrue from international trade and cross-border investments in your country. (4 marks)

**(Total: 20 marks)**

**QUESTION FIVE**

(a) Highlight six social economic benefits of mobile money transfer. (6 marks)

(b) Outline three objectives of reorganizing a firm that is facing financial distress. (3 marks)

(c) A financial analyst expects two stocks, A and B to generate a return based on the market performance. The following table shows the analyst's expected returns:

| Market returns (%) | stock A (%) | stock B (%) |
|---|---|---|
| 6 | 2 | 8 |
| 20 | 30 | 16 |

**Required:**

(i) The betas of the two stocks. (2 marks)

(ii) The expected return on each stock if the market return is equally likely to be 6% or 20%. (3 marks)

(iii) The security market line if the risk free rate is 7% and the market return is equally likely to be 6% or 20 %. (3 marks)

(iv) The alphas of the two stocks. (3 marks)

**(Total: 20 marks)**

……..

# December 2011

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

**QUESTION ONE**

(a) Explain three types of indirect financial distress costs. (6 marks)

(b) Moto Ltd. is considering whether to buy a certain machine costing Sh.100, 000,000 or to lease the machine. It is estimated that the machine will reduce variable cost by Sh.31,000,000 per annum. The machine will have an eight year life with no salvage value. The machine will be depreciated on straight line basis.

The company's optimal capital structure is 50% debt to total assets and it's before tax cost of debt and cost of equity are 15% and 25 % respectively. The corporate tax rate is 30%. If the company were to lease the machine, the fees would be Sh.21,400,000 per annum paid at the end of the year. Assume that the lease is a finance lease.

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**Required:**

(i) The net present value (NPV) if the firm decides to buy the machine. (6 marks)

(ii) The net present value (NPV) if the firm decided to lease the machine. (6 marks)

(iii) Advice the company on whether to buy or lease the machine. ( 2 marks)

**(Total: 20 marks)**

**QUESTION TWO**

(a) Masumbuko Limited, a Kenyan company, buys industrial machinery from a Malaysian company at a price of 10 million Malaysian Ringgit (MYR). The machinery will be delivered and paid for in six month time. Masumbuko Limited seeks to establish its cost in Kenya Shilling (Kshs). The company decides to use the forward market to accomplish its objective. The following information is obtained from the bank:

| | **Kenya shilling (Kshs.)** | **Malaysian Ringgit (MYR)** |
|---|---|---|
| Interest rate per annum | 8% | 9% |
| Spot exchange rates | 2.041Ksh /MYR | MYR 0.49/Ksh |

The bank will charge a commission of 0.25% on any transaction.

**Required:**

(i) Advise the company whether or not to adopt a long or short forward strategy. (2marks)

(ii) Compute the equilibrium forward rate for the Kenya shilling (Ksh) under an indirect quote. (4marks)

(iii) Determine the effect of the bank commission on the Malasyian Ringgit (MYR) value of the Kenya shilling. (2 marks)

(iv) Compute the price in Kenya shilling (Kshs) that the company can establish by using the forward market. (2marks)

(b) Ann Kanono can earn a return of 15% by investing directly in the stock exchange. She is considering a recently announced equity mutual fund scheme where the entry load is 1% and the recurring annual expenses are expected to be 2%.

**Required:**

The return the mutual fund scheme should earn in order to provide a return of 15% to Ann Kanono. (4marks)

(c) Describe three forms of public enterprise restructuring in your country (6 marks)

**(Total: 20 marks)**

**QUESTION THREE:**

(a) In the recent past, mergers and acquisition have failed despite their popularity in the past

Evaluate four reasons behind failed mergers and acquisitions (8 marks)

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(b) Double Limited is contemplating acquiring Tatu Limited .The following information relates to Tatu limited for the next five years.

| | Year1 | year 2 | year 3 | year 4 | year 5 |
|---|---|---|---|---|---|
| | Sh"million" | Sh"million" | Sh"million" | Sh"million" | Sh."million" |
| Net sales | 10, 050 | 1,260 | 1,510 | 1,740 | 1,910 |
| Cost of sales | 735 | 882 | 1,057 | 1,218 | 1,337 |
| Selling and admin expenses | 100 | 120 | 130 | 150 | 160 |
| Interest ex | 40 | 50 | 70 | 90 | 110 |

**Addition information:**

1. After the fifth year, the cash flows available to Double limited from Tatu limited are expected to grow by 10% per annum in perpetuity.
2. Tatu Limited will retain Sh 40,000,000 for internal expansion every year.
3. The cost of capital can be assumed to be 18%.
4. The applicable corporate tax rate is 30%.

**Required:**

(i) The estimated annual cash flows of Tatu limited (8 marks)

(ii) The maximum amount that Double limited would be willing to pay to acquire Tatu limited. (4 marks)

**(Total: 20 marks)**

**QUESTION FOUR:**

(a) Describe four functions of investment banks. (4 marks)

(b) The board of directors of Petkam Holdings limited is considering a review of the company's divided policy.

**The following information is provided:**

1. The company paid Sh.2.5 billion as divided in the previous financial year.
2. The profit after tax for the last financial year was Sh.5.7 billion.
3. The company has not issued any preference shares.
4. The company has been having a constant growth rate of 12% per annum for the past ten years
5. The expected profit after tax for the current financial year is Sh.10.5 billion.
6. The company anticipates investment opportunities worth Sh.2.1 billion in the current financial year.
7. The capital structure of the company consists of 70% equity and 30% debts.

**Required:**

The optimal total dividends for the current financial year if the company wishes to adopt the following independent dividend policies:

(i) Pure residual policy. (2 marks)

(ii) Constant payout ratio policy. (2 marks)

(iii) Stable predictable divided policy. Assume that the growth rate is equivalent to the earning growth rate. (2 marks)

(c) Utawala Hypermarket Ltd., a supermarket chain, is considering opening a new branch. The following details are relevant to the new branch:

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| | Sh."Million" |
|---|---|
| Estimated cost | 12 |
| Present value of net receipts | 10 |
| Net present value (NPV) | 2 |

Though the project has a negative net present value (NPV), undertaking the project would provide the firm with the option of expanding by opening a second store.
The option would have the following details:

| | |
|---|---|
| Timing (t) | 5 years |
| Estimated cost | Sh.20 million |
| Net present value (NPV of net receipts | Sh.15 million |
| Volatility of cash flows | 28.3% |
| Risk-free rate | 6% |

**Required:**
Using the Black-scholes option pricing model, calculate the value of a call option on the second store and advice on whether or not to accept the first investment in the store (10 marks)

**(Total: 20 marks)**

**QUESTION FIVE:**

(a) Your country is in the process of adopting performance contracting in all its public sector enterprises.

**Required:**
Explain four objectives which the performance contracting process is expected to achieve. (8 marks)

(b) Describe the following methods of credit enhancement:

(i) Excess spread. (2 marks)

(ii) Overcollateralisation. (2 marks)

(iii) Surety bond. (2 marks)

(c) The following information relates to Unified Holdings Ltd.'s capital structure, whose cost of debt varies according to its gearing level:

| Gearing (%) | Cost of debt before tax |
|---|---|
| 20 | 7.5% |
| 30 | 8.1% |
| 40 | 8.8% |
| 50 | 10.5% |
| 60 | 11% |
| 70 | 13% |
| 80 | 16% |

**Additional information:**
1. Risk free rate is 8%
2. Market return is 16%
3. Corporate tax rate is 30%
4. The company's ungeared beta (asset beta) is 0.95

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**Required:**
Unified holdings Ltd.'s optimal weighted average cost of capital (WACC). (6 marks)
**(Total: 20 marks)**

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# June 2011

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

**QUESTION ONE**

(a) Evaluate the separation theorem in support of the traditional investment theory. (6 marks)

(b) Briefly explain the meaning and importance of the following terms in relation to option pricing:

(i) Delta. (2 marks)

(ii) Theta. (2 marks)

(iii) Vega. (2 marks)

(c) Munyaka Ltd. Has recently introduced a formal scheme of long range planning. Sales in the current year reached Sh. 10 million and forecasts for each of the next five years are Sh.10.6 million, Sh.11.4 million Sh.12.4 million, Sh.13.6 million and Sh.15 million respectively. The ratio of net profit after tax to sales is 10% and this is expected to continue throughout the planning period. Total assets less current liabilities will remain at 125% of sales.

It was suggested at a recent board meeting that:
1. If profits rise, dividends should rise by the same percentage.
2. An earnings retention rate of 50% should be maintained.
3. The ratio of long-term borrowing to long-term funds (debt plus equity) is limited (by the market) to 30%, which happens also to be the current gearing level of the company.

**Required:**
Prepare a draft long range plan showing the profits, dividends, assets required and funding levels for the current year and the next five years. (8 marks)
**(Total: 20 marks)**

**QUESTION TWO**

(a) kitunda Ltd. Has estimated the cost of debt and equity for various financing gearing levels as follows:

| | **Required rate of return** | |
|---|---|---|
| **Proportion of debt** | **debt** | **Equity** |
| **Capital** | **%** | **%** |
| 0.90 | 9.4 | 37.0 |
| 0.80 | 8.2 | 36.0 |
| 0.70 | 7.4 | 35.5 |
| 0.60 | 6.9 | 29.1 |
| 0.50 | 6.6 | 25.2 |
| 0.40 | 6.4 | 20.4 |
| 0.30 | 6.2 | 15.6 |
| 0.20 | 6.1 | 13.5 |
| 0.10 | 6.0 | 13.1 |
| 0.00 | - | 13.0 |

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**Required:**

(i) The optimal capital structure. (6 marks)

(ii) Kitunda Ltd. Wishes to transform from its optimal gearing level to an all-equity financed firm. Apply the Modigliani and Miller's model with no taxes to determine the equity cost of capital. (2 marks)

(b) Go Down Ltd.., an all-equity financed firm, has the following earnings per share and dividends per share for the last five years:

| **Year** | **2010** | **2009** | **2008** | **2007** | **2006** |
|---|---|---|---|---|---|
| Earnings per share (Sh.) | 25 | 22 | 20 | 17 | 16 |
| Dividend per share (Sh.) | 11 | 10.5 | 10 | 9.5 | 9 |

**Additional information:**

1. The year 2010 dividend has just been paid and the next dividend is payable in one year.
2. The company has the opportunity to invest in a new product, "Nown". In the next two years.
3. The directors are considering reducing the dividend to Sh.7 per share for each of the next two years to fund the project. However, the dividend in the third year can be raised to Sh.13 per share and will grow by 8 per cent per annum thereafter due to the benefits from the investment.
4. The company is focused on shareholders' wealth maximization and requires a rate of return of 15% for its owners.

**Required:**

(i) If the directors choose to ignore the investment opportunity and dividend continued to grow at the historical rate, determine the value of one share using the dividend valuation model. (4 marks)

(ii) If the investment is accepted and therefore dividends are reduced for the next two years, determine the value of one share. (4 marks)

(c) Explain the meaning of the "pecking order theory". (4 marks)

**(Total: 20 marks)**

**QUESTION THREE**

(a) Explain how you would determine the offer price of an initial public offering (IPO) if you were an investment banker. (4 marks)

(b) (i) Explain the reasons why there could be a conflict between profit maximization and share holder wealth maximization. (2 marks)

(c) "Smart analysts can manipulate the application of the net present value (NPV) method to make any project's NPV look positive. It is better to use a simpler approach like payback period or accounting rate of return that gives analysts fewer degrees of freedom to manipulate the numbers".

Respond to this comment. (4 marks)

(d) Consider a project with the following cash flows attributable to a firm with a 15 per cent cost of capital:

| **End year** | **cash flow Sh.** |
|---|---|
| 0 | -20,000 |
| 1 | 50,000 |
| 2 | -10,000 |

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**Required:**

(i) Compute the two internal rates of return (IRRs) associated with this cash flow stream.(6 marks)

(ii) If the firm's cost of capital falls between the two IRR values calculated in (d) (i) above, advise the firm on whether to accept or reject the project. (2 marks)

**(Total: 20 marks)**

**QUESTION FOUR**

(a) Explain the three types of synergy that might result from a merger. (6 marks)

(b) (i) Evaluate the usefulness of Altman's Z-score in predicting bankruptcy. (4 marks)

(ii) The following statement of financial position and statement of comprehensive income relate to Wendani Industries Ltd. The firm's share is currently priced at Sh.6.00 per share:

**Wendani Industries Ltd.**
**Statement of financial position as at 31 December 2010**

| **Assets** | **"Sh."** | **Liabilities and shareholders' equity** | **"Sh."** |
|---|---|---|---|
| Cash | 400,000 | Accounts payable | 5,000,000 |
| Accounts receivable | 3,000,000 | Notes payable-bank | 1,000,000 |
| Inventories | 4,000,000 | Total current liabilities | 6,000,000 |
| Total current assets | 7,400,000 | Mortgages | 4,000,000 |
| Premises | 1,000,000 | Debentures | 6,000,000 |
| Plant (NBV) | 5,000,000 | Total long-term debt | 10,000,000 |
| Equipment (NBV) | 8,000,000 | Preference shares (100,000 shares) | 1,000,000 |
| Total fixed assets | 14,000,000 | Ordinary shares (500,000 shares) | 1,000,000 |
| Total assets | 21,400,000 | Share premium | 2,000,000 |
| | | Retained earnings | 1,400,000 |
| | | Total shareholders' equity | 5,400,000 |
| | | Total | 21,400,000 |

**Wendani Industries Ltd.**
**Statement of comprehensive income for the year ended 31 December 2010**

| | **Sh.** |
|---|---|
| Sales | 6,000,000 |
| Less: cost of goods sold | 3,500,000 |
| Less: Selling and administrative expenses | 1,000,000 |
| Earnings before interest and taxes | 1,500,000 |
| Less: Interest expense | 1,100,000 |
| Earnings before taxes | 400,000 |
| Less: taxes (30%) | 120,000 |
| Net income | 280,000 |

Required:
Altman's Z-score for Wendani Industries Ltd. And interpret its meaning. (10 marks)

**Hint:** $Z = 1.2_{x1} + 1.4_{x2} + 3.3_{x3} + 0.6_{x4} + 0.999_{x5}$

**(Total: 20 marks)**

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**QUESTION FIVE**

(a) Explain the difference between "futures contracts" and "forward contracts". (6 marks)

(b) The following information is provided about Utopia market

| | |
|---|---|
| Market return | 14% |
| Risk-free rate | 6% |
| Corporate tax rate | 30% |

Pick Ltd. Is considering diversifying into the mining industry in the Utopia market where the asset beta of a similar-sized company in the industry, Back Ltd. is 0.90.

Back Ltd.'s gearing details are as follows:

| | **Book values Sh."million"** | **market values Sh."million"** |
|---|---|---|
| Equity | 165 | 230 |
| Debt | 65 | 60 |

**Required:**

The cost of equity of Pick Ltd. (4 marks)

(c) Dak Ltd. has issued the following statement as part of its annual report:

"This company aims at all times to serve its shareholders by paying a high level of dividends and adopting strategies that will increase the company's share price. Satisfying our shareholders will ensure our success. The company will reduce costs by manufacturing overseas wherever possible and will attempt to minimize the company's global tax bill by using tax haven facilities".

**Required:**

Discuss the validity and implications of each of the comments and strategies in the above statement.

(10 marks)

**(Total: 20 marks)**

……

# December 2010

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

**QUESTION ONE**

(a) Explain why maximizing profits might not be the same as maximizing shareholder, wealth (3 marks)

(b) Evaluate Modigliani and Miller's assumptions in support of their theory of dividend irrelevancy. (5 marks)

(c) ABC Ltd. expects with some degree of certainty to generate the following net income and to have the following capital expenditures during the next 5 years:

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| Year | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Net income (Shs.”000”) | 2,000 | 1,500 | 2,500 | 2,300 | 1,800 |
| Capital expenditures (Shs”000”) | 1,000 | 1,500 | 2,000 | 1,500 | 2,000 |

The company currently has one million ordinary shares and pays dividends of Sh.1 per share.

**Required:**

(i) The dividend per share and external financing required in each year if the dividend policy is treated as a residual decision. (3 marks)

(ii) The amount of external financing in each year that would be necessary if the present dividend per share is maintained. (3 marks)

(iii) The dividend per share and the amount of external financing that will be necessary if a dividend payout ratio of 50% is maintained. (3 marks)

(iv) The dividend policy under which aggregate dividends are maximized and external financing minimized. (3 marks)

**(Total: 20 marks)**

**QUESTION TWO**

Furnace Ltd. wishes to evaluate two plans, leasing and borrowing to purchase an oven. The firm’s tax rate is 40%.

**Lease option:** The Company can lease the oven under a 5 year lease requiring annual end-of year payments of Shs.5, 000,000. All maintenance costs will be paid by the lessor, while insurance and other costs will be borne by the lessee, the lessee will exercise its option to purchase the asset for Shs.4, 000,000 at termination of the lease.

**Purchase option:** The oven costs Sh.20, 000,000 and will have a five year useful life. Depreciation charges in the five years will be as follows: Year 1 Sh.4,000,000, Year 2 Sh.6,400,000, Year 3 Sh.3,800,000, Year 4 Sh.2,400,000 and Year 5 Sh.2,400,000. (The balance of value being the residual value).

The total purchase price will be financed by a 5 year, 15% loan requiring equal annual end of year payments of Sh.5, 967,000. The firm will pay Sh.1 million per year for a service contract that covers all maintenance costs. Insurance and other costs will be borne by the firm. The firm plans to keep the equipment and use it beyond its 5 year recovery period.

**Required:**

(a) For the leasing option, calculate the following:

(i) The after tax cash outflow each year. (2 marks)

(ii) The present value of the cash outflow, using a 9% discount rate. (2 marks)

(b) In respect of the purchase option, calculate the following:

(i) The annual interest expense deductible for tax purposes for each of the 5 years. (3 marks)

(ii) The after tax cash outflow resulting from the purchase for each of the 5 years. (5 marks)

(iii) The present value of the cash outflow, using a discount rate of 9%. (2 marks)

(c) Compare on the present values of the cash outflow streams for the two plans and determine which plan would be preferable. (2 marks)

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(d) Comment on the circumstances under which the adjusted present value (APV) method might be a better method of evaluating a capital investment than the net present value (NPV) method. (4 marks)

**(Total: 20 marks)**

**QUESTION THREE**

(a) An investor holds 200,000 shares in ZP Ltd. and is considering buying some put options to hedge her investment. ZP Ltd.'s current share price is Sh.60. the risk free rate is currently 12% per annum and the recent volatility of ZP Ltd's share price has been 30%. The investor requires European put options with an exercise price of Sh. 50 for exercise in two year's time.

**Required:**

(i) The amount that the investor is likely to pay for the 200,000 put options given the investor's specifications. (12 marks)

(ii) The investor's change in wealth if she buys the put options and the share price of ZP Ltd.'s share in two year's time is Sh.30. (4 marks)

(b) Explain two advantages of using a plain vanilla currency swap with monthly delivery compared with a strip of forward contracts. (4 marks)

**(Total: 20 marks)**

**QUESTION FOUR**

(a) Differentiate between management buy-outs and management buy-ins. (4 marks)

(b) Kubwa Ltd. is considering the acquisition of Ndogo Ltd. relevant financial information is as follows:

| | **Kubwa Ltd.** | **Ndogo Ltd.** |
|---|---|---|
| Present earnings (Sh. "000") | 4,000 | 1,000 |
| Ordinary shares (thousands) | 2,000 | 800 |
| Earnings per share (Sh.) | 2.00 | 1.25 |
| Price/earning ratio (times) | 12 | 8 |

Kubwa Ltd. plans to offer a premium of 20 per cent over the market price of Ndogo Ltd.'s shares.

**Required:**

(i) The ratio of exchange of the shares and the number of new shares to be issued. (4 marks)

(ii) The earnings per share for the surviving company immediately following the merger. (2 marks)

(iii) If the price earnings ratio of Kubwa Ltd. stays at 12 times, determine the market price per share of the surviving company and explain what would happen if the price earnings ratio fell to 11 times. (4 marks)

(c) Suppose the pound sterling is bid at $1.9724 in New York and the Euro is offered at $1.3450 in Frankfurt. At the same time, London banks are offering the pound sterling at €1.4655.

**Required:**

Show the steps that an astute trader would follow to earn a risk-less profit through a triangular arbitrage. Assume that the trader begins in New York with $1,000,000. (6 marks)

**(Total: 20 marks)**

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**QUESTION FIVE**

(a) Muungano Ltd. has four main subsidiaries in which it has invested in the following proportions:

| Subsidiary | proportion of investment (%) | Beta |
|---|---|---|
| Electricity utility | 60 | 0.7 |
| Cable company | 25 | 0.9 |
| Real estate | 10 | 1.3 |
| Special projects | 5 | 1.5 |

**Required:**

(i) The holding company's beta. (2 marks)

(ii) Assuming that the risk free rate is 6% and the market risk premium is 5% determine the holding company's required rate of return. (2 marks)

(b) MM Ltd. has earnings before interest and taxes of Sh.3 million and a 40% tax rate. Its required rate of return on equity in the absence of borrowing is 18%.

**Required:**

In the absence of personal taxes, determine the value of the company in a Modigliani and Miller world:

(i) With no leverage. (3 marks)

(ii) With Sh.4 million in debt. (3 marks)

(iii) With Sh.7 million in debt (3 marks)

(c) With reference to (b) above, assume that personal as well as corporate taxes now exist. The marginal personal tax rate on common stock income is 25% and the marginal personal tax rate on debt income is 30%.

Determine the value of the company for each of the three debt alternatives in parts (b) (i)-(iii) above. Comment on your answers. (7 marks)

**(Total: 20 marks)**

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# JUNE 2010

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

**QUESTION ONE**

**(a)** Differentiate between "capital investment" and "capital budgeting". (4 marks)

(b) Discuss ways in which a capital budgeting policy could inadvertently thwart corporate strategy and thereby limit profitability (4 marks)

(c) Kihingo limited is considering five project proposals as summarized below:

| Project | initial investment Sh."million" | annual revenue sh."Million | annual fixed costs sh."Million | life of project (years) |
|---|---|---|---|---|
| A | 10 | 20 | 5 | 3 |
| B | 30 | 30 | 10 | 5 |
| C | 15 | 18 | 6 | 4 |
| D | 12 | 17 | 8 | 10 |
| E | 18 | 8 | 2 | 15 |

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**Additional information:**

1. Variable costs are 40% of annual revenue.
2. projects D and E are mutually exclusive
3. Each project can only be undertaken once and each is divisible.
4. assume that;
   - The cash flows are confined to within the life time of each project.
   - The cost of capital is 10%.
   - No inflation exists
   - No taxes exist.
   - All cash flows occur on anniversary dates.

**Required:**

Assuming that the company has a limit of sh.40 million for investment in projects at time 0 (zero), determine the optimal allocation of the sh.40 million among the projects and the resultant maximum net present value (NPV) obtainable (12 marks)

**(Total: 20 marks)**

**QUESTION TWO**

Investor ltd. Is considering two new investment opportunities, project 1and project 2. Each project would require an immediate cash outlay of sh.10, 000,000. Investor ltd. expects to have available enough resources to undertake one of the projects.

The directors of investor ltd. Believe that returns from existing activities and from the new projects will depend on which of the three economic environments prevails during the coming year. They estimate returns for the coming year (tat is, cash flows to be received at the end of the year plus project value at that time), and the probabilities of the three possible economic environments, as follows:

| | **Economic environment** | | |
|---|---|---|---|
| | **A** | **B** | **C** |
| Probability of economic environment | 0.3 | 0.4 | 0.3 |
| | Sh. | Sh. | Sh. |
| Returns from project 1 | 12,500,000 | 12,500,000 | 9,500,000 |
| Returns from project 2 | 10,000,000 | 11,750,000 | 13,000,000 |
| Aggregate returns from existing Portfolio of projects | 90,000,000 | 120,000,000 | 130,000,000 |

The company has current market value of sh.100, 000,000. The directors of investor ltd. Believes that the risks and returns per shilling of market value of their existing activities are similar to those of the stock market as a whole, including their dependence on whichever economic environment prevails. The current rate of interest on short-term government securities is 10% per annum

**Required:**

Using the capital asset pricing model (CAPM), advice the directors of investor ltd. on which of the two proposed projects should be accepted. (20 marks)

**QUESTION THREE**

(a) (i) explain the meaning of the term "free cash flow". (2 marks)

(ii) Explain whether you agree with the assertion that "free cash flows should be fully utilized in paying out dividends". (4 marks)

(b) Baba ltd. And Toto ltd. Are firms operating in the same industry and are considered to be in the same risk class. Each firm has an operating profit of sh.250000000 per annum. The capital structures of the two firms are as follows:

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| | Baba ltd. Sh."million" | Toto ltd. sh."Million" |
|---|---|---|
| Equity (market value) | 1,750 | 1,000 |
| 8% debt (trading at par) | - | 1,000 |
| | 1,750 | 2,000 |

The two companies have a 100%dividend payout ratio.

**Required:**

(i) The weighted average cost of capital (WACC) of each of the two firms.

(ii) Comment on the equilibrium position of the equity shares of the two firms.

(iii) Advice alusa, who holds 4% of Toto ltd.,s equity shares, on the arbitrage opportunities available to him.
(Ignore taxation) (4 marks)

**(**c) Mwananchi ltd. has total assets of sh.100 million. The company is considering financing alternatives for a Sh.10 million expansion. Investors are believed to be generally well informed.

The following information relating to mwananchi ltd. And four other companies in the same industry has been provided.

| | Company | | | | |
|---|---|---|---|---|---|
| | **1** | **2** | **3** | **4** | **mwananchi ltd.** |
| Debt to total assets | 0.30 | 0.40 | 0.45 | 0.50 | 0.47 |
| Times interest earned | 8.32 | 6.41 | 5.83 | 5.23 | 4.98 |
| Weighted average cost of capital | 12.23% | 10.67% | 11.56% | 12.68% | 13.12% |

**Required:**

Explain whether you would recommend debt or equity financing for mwananchi ltd. (4marks)

**(Total: 20 marks)**

**QUESTION FOUR**

(a) Explain the defense tactics available to the managers of a target company in order to fend off a hostile takeover attempt. (6 marks)

(b) Kubwa ltd. Wishes to acquire Ndogo ltd. The directors of kubwa ltd. wish to justify the acquisition on the grounds that it will increase the shareholders` wealth. The supporting evidence produced by the directors of Kubwa ltd. Is summarized below:

| | Kubwa ltd. Sh."000" | Ndogo ltd sh."000" |
|---|---|---|
| Operating profit | 12,400 | 5,800 |
| Interest payable | (4,431) | (2,200) |
| Profit before tax | 7,969 | 3,600 |
| Tax | 2,789 | 1,260 |
| Earnings attributable to ordinary shareholders | 5,180 | 2,340 |
| | | |
| Earnings per share (per-acquisition) | sh.14.80 | sh.29.25 |
| Market price per share (pre-acquisition) | sh.222 | sh.322 |
| Estimated market price per share (post acquisition) | sh240 | sh.360 |

Kubwa ltd. would issue three of its ordinary shares for every two shares in Ndogo ltd., in consideration of the acquisition of Ndogo ltd.

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**Required:**

(i) Show calculations of how the directors of Kubwa ltd. arrived at their estimates of post-acquisition value, and if you do not agree with these estimates, produce revised estimates of the post-acquisition values. (8 marks)

(ii) If the acquisition is contested by Ndogo ltd., determine the maximum price that Kubwa ltd. would offer without reducing the wealth of its shareholders. (2 marks)

(c) Evaluate the difference between "fundamental analysis" and "technical analysis". (4 marks)

**(Total: 20 marks)**

**QUESTION FIVE**

(a) Explain how a company could manage foreign currency risks when invoicing a customer in a country which has no developed capital and currency markets. (4 marks)

(b) (i) explain the key factors that affect the value of options. (4 marks)

(ii) Mapema ltd.`s shares are currently trading at sh.3.50 per share. A European option exists on the shares with an exercise price of sh.3.30 with 3 months to maturity. The risk free rate is 8% and the variance of the rate of return on the share is 12%.

**Required:**

Determine the value of the call option using the black- scholes option pricing model. (8 marks)

(c) Outline four limitations of the black-scholes option pricing model. (4 marks)

**(Total: 20 marks)**

**……..**

# December 2009.

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

**QUESTION ONE**

(a) Differentiate between "sensitivity analysis" and scenario analysis". (4 marks)

(b) ABC ltd. Is contemplating a replacement cycle for new machinery. This new machinery will cost sh.100 million to purchase. The operating and maintenance costs for the future years are as follows:

| **Year** | **0** | **1** | **2** | **3** |
|---|---|---|---|---|
| Operating and maintenance costs (sh."000") | 0 | 120,000 | 130,000 | 140,000 |

The resale values of the machinery in the second market are as follows:

| **Year** | **0** | **1** | **2** | **3** |
|---|---|---|---|---|
| Resale value (sh."000") | 0 | 80,000 | 65,000 | 35,000 |

**Assume:**

1. The replacement is by an identical machine.
2. There is no inflation, tax or risk.
3. The cost of capital is 11%.

**Required:**

Advice ABC ltd. On whether to replace this new machine on a one, two or three-year cycle. (Use the equivalent annual cost method). (10 marks)

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(c) Despite Modigliani and miller's (MM) argument that dividends are irrelevant, dividend payments have tended to smoothen over the years rather than take the expected random pattern.

**Required:**
Explain three theories which support dividend payment. (6 marks)

**(Total: 20 marks)**

**QUESTION TWO**

(a) Explain the differences between "financial intermediation" and "financial facilitation". (4 marks)

(b) Miranda ltd. Is an all equity financed company with a cost of capital of 18.5%. The company is considering the following one year capital investment projects:

| **Project** | **outlay Sh."000"** | **annual cash flow sh."000"** | **beta** |
|---|---|---|---|
| A | 1,000 | 1,095 | 0.3 |
| B | 1,000 | 1,130 | 0.5 |
| C | 1,500 | 1,780 | 1.0 |
| D | 2,000 | 2,385 | 15 |
| E | 2,000 | 2,400 | 2.0 |

The risk free rate of return is 8% and the market rat of return is 15%.

**Required:**

(i) The beta factor of Miranda ltd. (2 marks)

(ii) The required rate of return and the expected return of each of the above projects indicating which project(s) the company should undertake and which one(s) to reject. (8 marks)

(iii) The beta factor of the investment in the accepted projects.
(2 marks)

(c) Evaluate any four limitations of portfolio analysis. (4 marks)

**(Total: 20 marks)**

**QUESTION THREE**

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

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

(b) An unlevered firm operates in a perfect market and has a net operating income (EBIT) of sh.2, 000,000. The required rate of return on assets of firms in this industry is 8%. Assume that the firm issues sh.10, 000,000 worth of debt with a required rate of return of 6.5 per cent and issues the proceeds to repurchase outstanding stock. There are no corporate or personal taxes.

**Required:**

(i) The market value and required rate of return of this firm's stock before the repurchase transaction, according to MM proposition 1. (2 marks)

(ii) The market value and required rate of return of this firm's remaining stock aftr the repurchase transaction according to MM proposition 11. (4 marks)

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(c) International manufacturers limited has earnings before interest and taxes (BIT) sh.10 million. The company has sh. 60 million of debt outstanding with a required rate of return of 6.5 per cent.

Assume that there are corporate taxes of 30% the rate of return required by shareholders of an all equity firm is 10%

**Required:**

(i) The present value of the interest tax shield of International Manufacturers ltd. As well as the total value of the firm. (4 marks)

(ii) The gain from leverage if personal taxes of 10 per cent on common stock income and 35 per cent on debt income exists. (6 marks)

**(Total: 20 marks)**

**QUESTION FOUR**

(a) Explain the meaning of the term "corporate control" and describe the various ways in which a change of corporate control could occur (8 marks)

(b) The following statement of financial position and income statement relate to Migingo Industries ltd. The company's ordinary shares are currently priced at sh.6 per share:

**Migingo Industries Ltd.**
**Statement of financial position as at 31 December 2008**

| **Assets** | | **liabilities and .shareholders` equity** | | |
|---|---|---|---|---|
| | **Sh.** | | **Sh.** | |
| Cash | 400,000 | accounts payable | 5,000,000 | |
| Accounts receivable | 3,000,000 | notes payable | 1,000,000 | |
| Inventories | 4,000,000 | total current liabilities | 6,000,000 | |
| Total current assets | 7,400,000 | mortgage | 4,000,000 | |
| Land | 1,000,000 | debentures | 6,000,000 | |
| Plant (NBV) | 5,000,000 | total long-term debt | 10,000,000 | |
| | **Sh.** | | **Sh.** | |
| Equipment (NBV) | 8,000,000 | preference share capital | | |
| Total fixed assets | 14,000,000 | (100000 shares) | 1,000,000 | |
| | | Ordinary share capital | | |
| | | (500000shares) | 1,000,000 | |
| | | Paid in capital in excess of par | | 2,000,000 |
| | | Retained arnings | 1,400,000 | |
| | | Total shareholders` equity | 5,400,000 | |
| | 21,400,000 | total liabilities and equity | 21,400,000 | |

**Migingo Industries ltd.**
**Income statement for the year ended 31 December 2008**

| | **Sh.** |
|---|---|
| Sales | 6,000,000 |
| Cost of goods sold | (3,500,000) |
| Selling and administration expenses | (1,000,000) |
| Earnings before interest and taxes | 1,500,000 |
| Interest | 1,100,000 |
| Earnings before taxes | 400,000 |
| Taxes (30%) | (120,000) |
| Net income | 280,000 |

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**Required:**
Altman's Z score and interpret its meaning.

($Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.60X_4 + 0.999X_5$) (6 marks)

(c) Critically evaluate the applicability of the Altman's Z score in the context of your country. (6 marks)

**(Total: 20 marks)**

**QUESTION FIVE**

(a) Evaluate the importance of budgeting and budgetary control in the management of public sector enterprises. (6 marks)

(b) (i) Explain the advantages of using interest rate swap arrangements. (4 marks)

(ii) Explain the risk involved in using interest rate swap techniques. (2 marks)

(c) Biashara International ltd. Is an import-export company based in Kenya.

On 1 October 2008, the company exported coffee to South Africa on a two months credit amounting to South African Rands (SAR) 14,000,000.

**Additional information:**

1. The rates in the forex and money markets wre as follows:

| | **Ksh/1SAR** |
|---|---|
| 1 October 2008 | 8.45 |
| 1 December | 8.40 |
| | **Interest rates** |
| Kenya | 21% per annum |
| South Africa | 9% per annum |

2. In the forex market, the SAR was quoted forward at an annual premium of 27%.
3. The customer settled the amount due on 1 December 2008.

**Required:**

(i) Expected two-month forward exchange rate as at 1 October 2008. (2 marks)

(ii) Advise Biashara International ltd. On which is the better hedging strategy between a forward contract and a money market hedge. (6 marks)

**(Total: 20 marks)**

……

# Pilot paper August 2009

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

**QUESTION ONE**

(a) Explain how financial imperatives might differ between enterprises in the private and public sectors and the extent to which such differences are a function of the differing nature of the accountabilities in these sectors. (9 marks)

(b) Orange limited and rainbow limited are companies operating in the same line of business. In the past few years, orange limited has experienced stiff competition from rainbow limited to an extent that orange limited is now contemplating acquiring rainbow limited to consolidate its market share.

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The following financial data is available about the two companies

| | Orange limited | rainbow limited |
|---|---|---|
| Annual sales (millions) | sh.375 | sh.45 |
| Net income (millions) | sh.30 | sh.3.75 |
| Ordinary shares outstanding (millions) | 7.5 | 1.5 |
| Earnings per share (EPS) | sh.4 | sh.2.5 |
| Market price per share | sh.42 | sh.18 |

Both companies are in the 30 per cent income tax bracket

**Required:**

(i) Maximum exchange ratio orange limited should agree to if it expects no dilution in its EPS. (3 marks)

(ii) Premium the shareholders of rainbow limited would receive at the exchange ratio obtained in (b) (i) above? (2 marks)

(iii) Orange limited`s post acquisition EPS if the two companies agree on an offer price of sh.21 (3 marks)

(iv) Orange limited`s EPS if every 50 shares of rainbow limited are exchanged for one 12% debenture of sh.1,000 par value. (3 marks)

**(Total: 20 marks)**

**QUESTION TWO**

The finance manager of STN ltd. is planning next year's capital budget. STN ltd. expects its net income to b sh.2, 700,000 next year and its current dividend payout ratio is 30%. The company's earnings and dividends are expected to grow at a constant rate of 8% pr annum. The last dividend paid by the company was sh.1.00 per share and the current equilibrium share price is sh.16. STN ltd can raise up to sh.1, 800,000 of debt at 11% before-tax cost, the next sh.1, 800,000 will cost 12% and all debt above sh.3, 600,000 will cost 13%. If STN ltd. Issues new ordinary shares, a 12% underwriting cost will be incurred. STN ltd.can sell the first sh.200,000 of new ordinary shares at the current market price, but to sell any additional new shares, STN ltd must lower the price to sh.14. STN ltd. Is at its optimal capital structure, which is 60% debt and 40% equity and the firm's corporation tax rate is 40%. STN ltd. has the following independent, indivisible and equally risky investment opportunities:

| **Project** | **Cost** | **Internal rate of return (IRR)** |
|---|---|---|
| | **Sh.** | **%** |
| A | 3,200,000 | 13.0 |
| B | 1,300,000 | 10.7 |
| C | 1,750,000 | 12.0 |
| D | 450,000 | 11.2 |

**Required:**

(a) The break points in the marginal cost of capital (MCC) schedule. (4 marks)

(b) The cost of ach component of the capital structure. (4 marks)

(c) The weighted cost of capital (WACC) in the intervals between each break in the MCC schedule (6 marks)

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(d) The MCC/IOS graph clearly indicating the projects to be undertaken. (4 marks)

(e) STN ltd.`s optimum capital budget. (2 marks)

**(Total: 20 marks)**

**QUESTION THREE**

(a) (i) What is the difference between a management and advisory firm and an investment company? (3 marks)

(ii) Describe the approach toward portfolio management adopted by each type of organization in (a) (i) above (3 marks)

(b) Closed-end funds generally invest in securities and financial instruments that are relatively illiquid whereas most mutual funds invest in widely traded stocks and bonds.

Explain the difference between closed-end funds and open-end funds and why this liquidity distinction matters. (5 marks)

(c) Mutual funds can effectively charge sales fees in three ways; front-end load fees, annual fees or deferred (that is back-end) load fees. Africana Re Fund offers its investors the following choices:

(i) 3% front-end load fees;

(ii) 0.5% annual deduction; or

(iii) 2% back-end load fees.

The fee is paid at the liquidation of the investor's position Africana Re Fund's net asset value growth averages 12% per annum.

Mr. Onyango plans to invest Ksh.100,000 in the fund.

**Required:**

(i) Compute the investment's worth in three years under each scheme and advice on the best scheme. (6 marks)

(ii) If the investment horizon is 10 years, would your advice in (c) (i) above change? Justify your answer. (3 marks)

**(Total: 20 marks)**

**QUESTION FOUR**

(a) Discuss four causes and indicators of financial distress. (8 marks)

(b) Discuss the various approaches used in predicting financial distress for a business firm. (12 marks)

**(Total: 20 marks)**

**QUESTION FIVE**

(a) Explain the following terms in relation to international business activities:

(i) Transaction risk. (2 marks)

(ii) Translation risk. (2 marks)

(b) Explain how inflation rates can be used to forecast exchange rates. (4 marks)

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(c) A UK company expects to receive US $ 800,000 from a customer in November 2009 and is thinking of hedging the currency exposure with an over the counter (OTC) currency option. The company is worried that the dollar will fall in value over the next few months.

The following option prices are available for the November 2009 expiry date, for calls and puts on sterling pounds (£) exchange for the US dollar ($). Prices of options are quoted in cents per £ 1.

| | Option prices | |
|---|---|---|
| **Exercise price** | **calls** | **puts** |
| **$** | | |
| 1.60 | 3.53 | 0.99 |
| 1.65 | 1.46 | 1.85 |

Assume it is now 1 September 2009 and the US dollar per sterling pound spot rate is $ 1.60.

**Required:**

(i) Show how the company would hedge itself against the currency exposure clearly indicating the cost at each of the two exercise prices. (4 marks)

(ii) Suppose that the spot exchange rate in November 2009 when the option expires is $ 1.70.

Explain the action the company should take and calculate the effective exchange rate if the option is at an exercise price of:

- $ 1.60. (4 marks)
- $ 1.65. (4 marks)

**(Total: 20 marks)**

……..

# JUNE 2009

**Answer ALL questions. ALL questions carry equal marks. Show ALL your workings.**

**QUESTION ONE**

(a) Explain the meaning of the term "agency problem" as used in financial management. (2 marks)

(b) Explain any three factors that influence interest rates in an economy. (6 marks)

(c) Distinguish between "real options" and "financial options". (4 marks)

(d) The Awendo Investment Fund (AIF) has a total of sh.500 million invested in five stocks:

| **Stock** | **Investment (sh.)** | **Stock's beta coefficient** |
|---|---|---|
| A | 160 million | 0.5 |
| B | 120 million | 2.0 |
| C | 80 million | 4.0 |
| D | 80 million | 1.0 |
| E | 60 million | 3.0 |

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The risk free rate of return is 8% whereas the market return has the following estimated probability distribution for the next period:

| **Probability** | **market return (%)** |
|---|---|
| 0.1 | 10 |
| 0.2 | 12 |
| 0.4 | 13 |
| 0.2 | 16 |
| 0.1 | 17 |

**Required:**

(i) The expected return from the market. (2 marks)

(ii) The beta coefficient for the investment fund. (2 marks)

(iii) The estimated equation for the security market line (SML). (2 marks)

(iv) The investment fund's required rate of return for the next period. (2 marks)

**(Total: 20 marks)**

**QUESTION TWO**

Mapema ltd. has the following capital structure which it considers optimal:

| **Source of capital** | **amount Sh."Million"** |
|---|---|
| Ordinary share capital | 90.0 |
| Preference share capital | 22.5 |
| Long term debt | 37.5 |
| Total | 150.0 |

Mapema ltd. Expects an after tax income of sh.5,143,000 in the next financial year. The company has a policy of paying out 30% of its earnings as dividends. Investors expect dividends to grow at an annual rate of 9% indefinitely. The dividend last paid by the company was sh.5.40 per share. The company's ordinary shares currently sell on the stock market at sh.90 per share. The company can obtain additional financing in the financial markets as follows:

**Long term debt**

Up to sh7.5 million of long-term debt can be obtained at an interest rate of 12%; long-term debt in the range of sh.7.5 million to sh.15 million must carry an interest rate of 14%; and all long-term debt over sh.15 million will have an interest rate of 16%. The corporate tax rate is 30% and interest on long-term debt is tax allowable.

**Ordinary shares**

New ordinary shares of up to sh..18 million can be raised at sh.81 per share. To issue additional shares above sh.18 million, a floatation cost of sh.18 per share must be incurred.

**Preference shares**

New preference shares with a par value of sh.100 can be issued and the dividend rate is 11%. However, a floatation cost of 5% of the par value per share must be incurred for all preference shares up to sh.11.25 million. Additional preference shares (above sh.11.25 million) can be raised at a floatation cost of sh.10 per share.

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The investment opportunities available to the company are as shown below:

| Investment | Outlay | Annual net cash flow | Life (years) | Internal Rate of Return) IRR) (%) |
|---|---|---|---|---|
| | SH. | SH. | | |
| I | 15,000,000 | 3,286,800 | 7 | 12.0 |
| II | 15,000,000 | 4,731,630 | 5 | 17.4 |
| III | 15,000,000 | 3,255,270 | 8 | 14.2 |
| IV | 30,000,000 | 5,684,220 | 10 | 16.0 |
| V | 30,000,000 | 8,141,760 | 6 | ? |

**Required:**

(a) Determine the break points in the marginal cost of capital (MCC) schedule (6 marks)

(b) Calculate the weighted average cost of capital (WACC) in the intervals between the break points in the MCC schedule. (6 marks)

(c) Calculate the internal rate of return (IRR) for project V. (3 marks)

(d) Construct an investment opportunity curve (IOC)/marginal cost of capital (MCC) schedule and indicate which project(s) should be accepted or rejected. (5 marks)

**(Total: 20 marks)**

**QUESTION THREE**

(a) Bidii ltd. has a cost of equity of 10%. The company currently has 250,000 shares outstanding and selling on the stock exchange at sh.120 per share. The company's earnings are sh.10 per share and it intends to maintain a dividend payout ratio of 50% at the end of the current financial year. The company's expected net income is sh.3 million and the available investment proposals are estimated to require sh.6 million.

**Required:**

Using the Modigliani and Miller (MM) proposition on dividend irrelevance, show that the payment of dividends does not affect the value of the firm. (8 marks)

(b) The management of Shujaa ltd. Is excited that the government has reduced the corporate tax rate from 33% to 30%. This tax cut is expected to increase the net present value of operating cash flows of the company by sh.15million.

The current capital structure of the company is as follows:

| | Sh."Million" |
|---|---|
| Ordinary share capital (sh.5 par value) | 30 |
| Retained earnings | 70 |
| Share premium | 40 |
| Shareholders equity | 140 |
| 10% debentures (sh.100 par value) | 40 |
| | 180 |

The company's shares are currently selling at sh.32.00 ex-div and the debentures are selling at sh.135 cum-interest

The equity beta is 1.2. The market return is 13%. Debt capital is risk free.

Assume that the cost of debt and the market price of the debentures will not change as a result of the tax cut.

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**Required:**

(i) Determine Shujaa ltd`s weighted average cost of capital (WACC) before the tax cut.(6 marks)

(ii) Determine the expected market price per share of Shujaa ltd. after the tax reduction.(6 marks)

**(in answering part (b) (ii) above, use the Modigliani and Miller's (MM`s) hypothesis under corporate taxes).**

**(Total: 20 marks)**

**QUESTION FOUR**

Pentel lt., a computer assembly company, intends to expand its operations. This will require an expansion of its assets by 50%. The annual incremental sales to be generated by this expansion are estimated to be sh.18 million with annual incremental earnings before interest and taxes (EBIT) of 25% on incremental sales. All the financing for this expansion will come from external sources as profit retentions are already committed elsewhere.
A financial analyst hired by the company has submitted the following proposals of financing the expansion for consideration:

Plan A Issue of 10% debentures

Plan B Issue of 10% debentures for half the required amount and issue of ordinary shares at 25% premium for the remaining balance of the amount.

Plan C Issue of ordinary shares at 25% premium.

The financial statements of the company for the year ended 30 April 2009 are as shown below:

**Pentel ltd.**
**Balance sheet as at 30 April 2009**

| **Equity and liabilities** | **sh."000"** | **assets** | **sh."000"** |
|---|---|---|---|
| Ordinary share capital (sh.10 par value) | 32,000 | non-current assets | 64,000 |
| 8% debentures | 24,000 | current assts | 32,000 |
| Retained earnings | 16,000 | | |
| Current liabilities | 24,000 | | |
| Total equity and liabilities | 96,000 | Total assets | 96,000 |

**Pentel ltd.**
**Income statement for the year ended 30 April 2009**

| | **Sh."000"** |
|---|---|
| Sales | 152,000 |
| Operating costs | (128,000) |
| Earnings before interest and taxes | 24,000 |
| Debenture interest | (1,920) |
| Earnings before taxes | 22,080 |
| Taxes (30%) | 6,624 |
| Earnings available to ordinary shareholders | 15,456 |
| Earnings per share | 4.83 |

The tax rate is expected to remain constant at 30%.

**Required:**

(a) The number of additional ordinary shares to be issued under financial plans B and C. (3 marks)

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(b) The earnings per share (EPS) indifference points between:

(i) Plan A and plan B (3 marks)

(ii) Plan A and plan C (3 marks)

(iii) Plan B and plan C (3 marks)

(c) Assume that the price/earnings (P/E) ratio will be 8 if plan C is adopted but will drop to 6 if either plan A or plan B is used to finance the expansion.

Determine the market price per share under each financing plan and advise pentel ltd. On the best means of financing the expansion (8 marks)

**(Total: 20 marks)**

**QUESTION FIVE**

(a) The following information has been extracted from the books of Sawa ltd. For the year ended 30 June 2008:

| | |
|---|---|
| Earnings after taxes | sh.7.5 million |
| Total dividends paid | sh.4.5 million |
| Number of shares outstanding | 1 million |
| Cost of capital | 10% |
| Rate of return on investments | 12.5% |

**Required:**

The theoretical market value of the company's share using Walter's model. (6 marks)

(b) Explain the effects of the activities of the International Monetary Fund (IMF) on the operations of multinational corporations. (8 marks)

(c) Explain the main causes of project failure in the public sector. (6 marks)

**(Total: 20 marks)**

……

# December 2008

**Answer ALL questions. ALL questions carry equal marks. Show ALL your workings.**

**QUESTION ONE**

Maendeeleo ltd. obtained a listing on the stock exchange in May 2008. Previously, 90% of the company's shares were owned by members of one family. Since the listing, approximately 60% of the issued shares have been owned by other investors.

The company's earnings and dividends for the five years prior to the listing on the stock exchange, as well as the current year, are detailed below:

| Period: | Profit after tax (sh.) | Dividend per share (sh.) |
|---|---|---|
| Year ended 31 December 2003 | 180,000,000 | 3.60 |
| Year ended 31 December 2004 | 240,000,000 | 4.80 |
| Year ended 31 December 2005 | 385,000,000 | 6.16 |
| Year ended 31 December 2006 | 410,000,000 | 6.56 |
| Year ended 31 December 2007 | 445,000,000 | 7.12 |
| Year ended 31 December 2008 | 550,000,000 (estimate) | |

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**Additional information:**

1. The number of issued ordinary shares was increased by 25% during the year ended 31 December 2005 and by 50% at the time of listing.
2. The company's authorized share capital is currently sh.250,000,000 in sh.2.50 ordinary shares of which 40,000,000 have been issued.
3. the market value of the company's equity shares is sh.780,000,000
4. The board of directors of Maendeleo ltd. Is discussing future dividend policy. An interim dividend of sh.3.16 per share was paid immediately prior to the listing and the Finance Director has suggested a final dividend of sh.2.34 per share.
5. The company's declared objective is to maximize shareholder's wealth.

**Required:**

(a) Comment on the nature of the company's dividend policy prior to the listing and explain whether such a policy is likely to be suitable for a company listed on the stock exchange. (5 marks)

(b) Explain whether the proposed final dividend of sh.2.34 is likely to be an appropriate dividend:

(i) If the majority of the company's shares are owned by wealthy private individuals (3 marks)

(ii) If the majority of the company's shares are owned by institutional investors. (3 marks)

(c) The company's profit after tax is expected to increase by 15% per year for the next three years, and 8% per year thereafter. Maendeleo ltd`s cost of capital is estimated to be 12%. Dividends may be assumed to grow at the same rates as profits.

**Required:**

(i) Use the dividend valuation model to determine whether Maendeleo ltd. `s shares are currently undervalued or overvalued. (6 marks)

(ii) Outline three weaknesses of the dividend valuation model. (3 marks)

**(Total: 20 marks)**

**QUESTION TWO**

(a) Explain how a decrease in the value of each of the determinants of the option price in the Black-Scholes option pricing model for European options is likely to change the price of a call option.

(b) A ltd. Is considering introducing an executive share option scheme. The scheme would be offered to all middle level managers of the company. It would replace the existing scheme of performance bonuses linked to the post-tax earnings per share of the company. Such bonuses in the last year ranged between sh.500000 and sh.700000. if the option scheme is introduced, new options are expected to be offered to the managers each year.

It is proposed that for the first year, all middle level managers be offered options to purchase 500000 shares at a price of sh.5.00 per share, after the options have been held for one year. If the options are not exercised at that time, they will lapse. Assume that the tax authorities allow the exercise of such options after they have been held for one year.

The company's shares have a current market price of sh.6.10 per share. The dividend paid was sh.0.25 per share, a level that has remained constant for the last three years. Assume that dividends are only paid annually.

The company's share price has experienced a standard deviation of 38% during the last year. The short-term risk-free interest rate is 6% per annum.

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**Required:**
Evaluate whether or not the proposed share option scheme is likely to be attractive to middle level managers of A ltd. (10 marks)

(c) When informed of the scheme in (b) above, one middle level manager of A ltd. Stated that he would rather receive put options than call options, as they would be more valuable to him.

(i) Explain whether or not A ltd. Should agree to offer him put options. (2 marks)

(ii) Is the manager correct in his statement that put options would be more valuable to him? Explain. (2 marks)

**NB:**
$C=S\ N(d_1)-E(e^{-rt})\ N(d_2)$
Where,

$$d_1 = \ln\left(\frac{S}{E}\right) + (rt + 0.5\sigma^2)t \Big/ \sigma\sqrt{t}$$

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

**(Total: 20 marks)**

**QUESTIN THREE**

(a) With the aid of a diagram, differentiate between an "efficient portfolio" and an "optimum portfolio". (4 marks)

(b) The rates of return of stock A and the market portfolio for 15 periods are given below:

| **Period** | **return on stock A** | **return on market portfolio** |
|---|---|---|
| 1 | 10 | 12 |
| 2 | 15 | 14 |
| 3 | 18 | 13 |
| 4 | 14 | 10 |
| 5 | 16 | 9 |
| 6 | 16 | 13 |
| 7 | 18 | 14 |
| 8 | 4 | 7 |
| 9 | -9 | 1 |
| 10 | 14 | 12 |
| 11 | 15 | -11 |
| 12 | 14 | 16 |
| 13 | 6 | 8 |
| 14 | 7 | 7 |
| 15 | -8 | 10 |

**Required:**
(i) The beta for stock A (8 marks)

(ii) The characteristic line for stock A. (4 marks)

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(c) Outline any four assumptions of the capital asset pricing model (CAPM) (4 marks)

**(Total: 20 marks)**

**QUESTION FOUR**

(a) Explain why synergy might exist when one company merges with or takes over another (6 marks)

(b) Hisa ltd. has the following capital structure, which it considers optimal.

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

**Additional information:**

1. Hisa ltd. `s expected profit after tax for the year ending 31 December 2008 is sh.34285714. Hisa ltd. has an established dividend pay-out ratio of 30%. The tax rate for the company is 30%, and investors expect earnings and dividends to grow at a constant rate of 9% per annum in the future.
2. The company paid a dividend of sh.3.60 per share in the year ended 31 December 2007. The company's shares currently sell at sh.60 per share.
3. The company can obtain new capital as follows:
   - Ordinary shares: new ordinary share capital can be issued at a floatation cost of 10%
   - Preference share capital: new preference share capital with a dividend of sh.11 per share can be issued to the public at sh.100 per share. The floatation cost is sh.5 per share
   - Debentures: debentures can be issued at an interest rate of 12% per annum.
4. Assume that the cost of capital is constant beyond the retained earnings break point.

**Required:**

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

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

(iii) Calculate the weighted average cost of capital (WACC) in the intervals between the break point in the marginal cost of capital schedule.

(iv) Hisa ltd. Has the following investments opportunities:

| **Project** | **cost (sh.)** | **internal rate of return (IRR)** |
|---|---|---|
| A | 10,000,000 | 17.4% |
| B | 20,000,000 | 16.0% |
| C | 10,000,000 | 14.2% |
| D | 20,000,000 | 13.7% |
| E | 10,000,000 | 12.0% |

Which of these projects should the company accept and why? (4 marks)

**(Total: 20 marks)**

**QUESTION FIVE**

(a) Explain the term "financial engineering".

(b) A medium-sized manufacturing company in South Africa is tendering for an order in Kuwait. The tender conditions state that payment will be made in Kuwait Dinars 18 moths from now. The company is unsure as to what price to tender. The company's marginal cost of production at the time of tendering is estimated to be south African rand (SA Rand) 1000000 and a 25% mark-up is normal for the company.

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Exchange rates
Dinars/1 SA Rand
Spot 5.467 – 5.503

No forward rate exists for 18 months time.

| | South Africa | Kuwait |
|---|---|---|
| Annual inflation rates | 9% | 3% |
| Annual interest rates available | | |
| To the manufacturing company | | |
| Borrowing | 14% | 9% |
| Lending | 9% | 3.5% |

**Required:**

(i) Explain how the manufacturing company might protect itself against foreign exchange rate changes. (6 marks)

(ii) Recommend what tender price should be used. (10 marks)

**(Total: 20 marks)**

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# JUNE 2008

**Answer ALL questions. ALL questions carry equal marks. Show ALL your workings.**

**QUESTION ONE**

(a) The concept of "economic value added" is being viewed by financial management experts as a possible alternative to the conventional measures of a company's financial performance.

**Required:**

(i) Define the term "economic value added" and outline the steps followed in its computation. (5 marks)

(ii) Explain why in your opinion, economic value added is gaining prominence as an alternative measure of a company's financial performance. (6 marks)

(b) The following are the main theories advanced to explain the shape of the interest yield curve over a period of time

(i) Expectation theory
(ii) Liquidity preference theory.
(iii) Market segmentation theory.

**Required:**

Explain the key provisions of each of the theories listed above. (9 marks)

**(Total: 20 marks)**

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**QUESTION TWO**

(a) The following extract of the balance sheet of Mapato ltd. shows the capital structure of the company as at 31 December 2007:

| | **Sh."000"** |
|---|---|
| Ordinary share capital (par value sh.125) | 62,500 |
| Reserves | 121,500 |
| Shareholders equity | 184,000 |
| | |
| Long term liability: | |
| 14% debenture stock (par value sh.500) | 118,500 |
| Capital employed | 302,500 |

The management of the company considers the above capital structure to be optimal.

**Additional information:**

1. The company's earnings before interest and tax (EBIT) average sh.75 million per annum. These earnings are expected to be maintained in the foreseeable future.
2. The ordinary shares are currently trading at sh.400 per share.
3. The market price of the debentures is sh.525 per debenture.
4. The corporate rate of tax is 30 per cent.

**Required:**

Using the net income approach (incorporating taxes). Calculate the company's:

(i) Cost of equity. (4 marks)

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

(iii) Market-weighted average cost of capital. (2 marks)

(b) The following information relates to Abacus ltd., an all-equity financed company:

1. The market value of the company (determined using the net income approach) is sh.130 million.
2. The cost of equity is 16 per cent.
3. The management of the company intend to replace sh.8 million worth of equity with debentures of similar value (assume all legal requirements will be fulfilled). The cost of the debentures would be 12 per cent (before tax).
4. The company's earnings before interest and tax (EBIT) are expected to remain constant in the foreseeable future.
5. All earnings after tax are paid out as dividend.
6. The company's rate of tax is 30 per cent.

**Required:**

(i) Using the Modigliani and miller (MM) approach, assess the effect of the change in capital structure on the market value of the company, cost of equity and weighted average cost of capital. (8 marks)

(ii) Advise the management of the company on whether to change the capital structure.(2 marks)

**(Total: 20 marks)**

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**QUESTION THREE**

The earnings per share (EPS) and dividend per share (DPS) of Magarini ltd. For each of the years ended 31 December 2003,2004,2005,2006 and 2007 were as follows:

| Year ended 31 December | EPS (sh.) | DPS (sh.) |
|---|---|---|
| 2003 | 5.90 | 2.50 |
| 2004 | 6.25 | 2.75 |
| 2005 | 7.30 | 3.025 |
| 2006 | 6.75 | 3.33 |
| 2007 | 8.00 | 3.66 |

The directors of the company are considering a change in the company's dividend policy. This change would involve a reduction in dividend per share for the year ending 31 December 2008 to sh.2.50 in order to increase the level of internally generated funds.

**Additional information:**

1. The growth rate in dividend per share after the change in policy is expected to be 12 per cent per annum.
2. The shareholders require a return on investments of 14 per cent.

**Required:**

(a) The dividend cover and the dividend payout ratio for each of the years ended 31 December 2003,2004,2005,2006 and 2007. (4 marks)

(b) The average dividend growth rate (to the nearest unit percentage) over the five year period.(2 marks)

(c) Using the dividend valuation model, calculate the, Market price per share as at 31 December 2007:

(i) Before the change in the dividend policy. (3 marks)

(ii) After the change in dividend policy. (3 marks)

(d) The break-even dividend growth rate that would equate the two market prices computed in (c) (i) and (ii) above. (2 marks)

(e) Which factors, other than profitability, should the company consider before changing the dividend policy? (4 marks)

(f) Will the change in dividend policy benefit the shareholders? Justify your answer. (2 marks)

**(Total: 20 marks)**

**QUESTION FOUR**

(a) Coffelink international (CLI) ltd. Is a company based in United Kingdom (UK). The company imports coffee from a number of countries in Africa and South America for sale in the UK market.

The company has a contract to import coffee from Kenya in two month's time that is on 1 August 2008. The payment is to be made in Kenya shillings (ksh.) and will total ksh.70 million.

The management of CLI ltd. Intends to use currency futures to hedge against exposure to foreign exchange risk.

**Additional information:**

1. The spot exchange rate between the Kenya shilling (ksh.) and the United Kingdom sterling pound (UK£) is as follows:

128.15 ksh = 1 UK£

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2. The Kenya shilling currency futures contracts trade as follows on the international financial market:

| | |
|---|---|
| Contract size: | ksh.12,500,000 |
| Contract: | (UK£ per ksh.) |
| August: | 0.007985 |
| November: | 0.008250 |

Assume that currency futures contracts mature at the beginning of the month.

**Required:**
Briefly explain how CLI might hedge against foreign exchange risk on the above transaction, indicating the number of futures contracts required. (4 marks)

(b) Mobilenet ltd. Is a company operating in the telecommunications industry. The company intends to invest in equipment that would facilitate wireless internet connectivity to small and medium-sized businesses. The equipment would cost sh.125 million

**Additional information:**
1. Given the rapid technological change in the telecommunications industry, the equipment is estimated to have a useful life of only three years with no salvage value.
2. The expected annual cash inflows from the project and their probabilities of occurrence are dependent on the state of demand as shown below:

| **State of demand:** | **Probability** | **Annual cash inflows (sh.)** |
|---|---|---|
| High | 0.25 | 82.5 million |
| Average | 0.50 | 62.5 million |
| Low | 0.25 | 12.5 million |

3. The company intends to purchase the equipment on 1 January 2009. However, the company has the option of delaying the purchase to 1 January 2010 in order to obtain further information on the project. The cost of the equipment, the cash inflows and their probabilities of occurrence are expected to remain the same regardless of the project implementation date.
4. If the project is delayed to 1 January 2010, the cash inflows associated with each state of demand will be known beforehand and the management would only purchase the equipment if a positive net present value is expected
5. The cost of capital is 12%

**Required:**
(i) Using decision tree analysis, calculate the expected net present value (NPV), standard deviation and co-efficient of variation of the project as at 1 January 2009 under each of the two possible implementation dates. (14 marks)

(ii) Advise the company on whether to invest in the equipment, and if so on which date. (2 marks)

**(Total: 20 marks)**

**QUESTION FIVE**

(a) One of the options of achieving company growth is through acquisition of other companies.

Briefly explain two advantages and two disadvantages of the acquisition strategy as a method of realizing company growth. (8 marks)

(b) An investor intending to purchase shares in Sarafu Commercial Bank (SCB) ltd. has approached you for advice.

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You have obtained the following information relating to the returns on the market portfolio and on shares of SCB ltd. Over the years shown below:

| Year ended 31 December | Return on market portfolio | Return on SCB ltd. `s shares |
|---|---|---|
| 2002 | 16% | 14% |
| 2003 | 20% | 18% |
| 2004 | 17% | 20% |
| 2005 | 12% | 16% |
| 2006 | 19% | 20% |
| 2007 | 18% | 24% |

You have also ascertained that the average rate of return on treasury bills has been 10% per annum and this rate is not expected to change in the foreseeable future.

**Required:**

(i) Expected return and total risk for the market portfolio and SCB ltd. `s shares. (6 marks)

(ii) Beta of the shares in SCB ltd. Interpret your result. (4 marks)

(iii) Using the security market line (SML) analysis, advise the investor on whether to purchase the shares in SCB ltd. (2 marks)

**(Total: 20 marks)**

……..

# December 2007

**Answer ALL questions. ALL questions carry equal marks. Show ALL your workings.**

**QUESTION ONE**

(a) With reference to capital structure decisions, briefly explain the following costs:

(i) Financial distress costs. (3 marks)

(ii) Agency costs. (3 marks)

(b) Dawanox ltd., an unleveled firm, generates average earnings before interest and tax (EBIT) of sh.20 million per annum. The market value of the company as at 31 October 2007, the company's financial year-end, was sh.120 million.

The management of the company are considering the use of debt finance and have provided the following additional information:

1. The estimated present value of any future financial distress costs is sh.80 million.
2. The probability of financial distress would increase with leverage according to the following schedule:

| Value of debt (sh.) | Probability of financial distress |
|---|---|
| 25 million | 0.0 |
| 50 million | 0.0125 |
| 75 million | 0.0250 |
| 100 million | 0.0625 |

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| | |
|---|---|
| 125 million | 0.1250 |
| 150 million | 0.3125 |
| 200 million | 0.750 |

3. The corporation rate of tax is 30 per cent.

**Required:**

(i) The company's cost of equity and weighted average cost of capital (WACC) as at 31 October 2007 (2 marks)

(ii) The company's optimal level of debt finance using the Modigliani and miller (MM) with-tax model (excluding financial distress costs). (6 marks)

(iii) The company's optimal level of debt finance using the MM with-tax model incorporating financial distress costs. (6 marks)

**(Total: 20 marks)**

**QUESTION TWO**

(a) "The government has recently been engaged in the privatisation of state enterprises with a view to transferring its ownership to the private sector and subsequently listing of the companies on the national stock exchange"

The above statement is an extract from a speech presented by the minister for finance of your country during a seminar on "role of the private sector in economic growth".

**Required:**

As a consultant in the privatization of state enterprises, discuss how the financial objectives of a state corporation would change after privatization and the changes in emphasis likely to occur in the strategic and operational decisions of the privatized entity. (14 marks)

(b) An investor holds 500 shares in Amada ltd., a quoted company. Amada ltd. has been paying average dividends of sh.2 per share per annum in recent years.

**Additional information:**

1. The dividends are expected to grow at a rate of 15 per cent per annum over the coming three years, then at a rate of 10 per cent over the next three years and finally at a rate of 5 per cent per annum to perpetuity.
2. The required rate of return is 9 per cent

**Required:**

The value of the 500 shares in Amada ltd. Using the dividend growth model. (6 marks)

**(Total: 20 marks)**

**QUESTION THREE**

(a) "in an uncertain world in which verbal statements can be ignored or misinterpreted, dividend action does provide a clear cut means of `making a statement` that `speaks louder than a thousand words`". (Ezra Solomon; the theory of financial management).

Elaborate on the above statement with particular emphasis on the dividend-signaling hypothesis. (6 marks)

(b) A company is considering a project which requires an initial investment of sh.2, 400,000 and which would generate annual cash flows as follows:

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| Year | cash flow (sh.) |
|---|---|
| 1 | 780,000 |
| 2 | 600,000 |
| 3 | 420,000 |
| 4 | 740,000 |
| 5 | 920,000 |

Funds may be borrowed at a cost of 10 per cent while the re-investment rate for positive cash flows is 12 per cent

**Required:**
Use the Modified Internal Rate of return (MIRR) approach to determine the worth of the investment to the company. (5 marks)

(c) Angaza ltd. And Nuru ltd. Operate in the same industry. Both companies have reported similar earnings per share over the last five years ended 31 December 2006.

However, there have been disparities between the market price of the shares of the two companies. The market price of Angaza ltd`s shares has generally been lower than that of Nuru ltd. `s shares.

**Additional information:**

1. Angaza ltd. has a policy of paying 40 per cent of earnings as dividend while Nuru ltd. pays a constant amount of dividend per share.
2. The earnings per share (EPS), dividend per share (DPS) and market price per share (MPS) of the companies for each of the five years to 31 December 2006 are presented below:

| | Angaza ltd. | | | Nuru ltd. | | |
|---|---|---|---|---|---|---|
| **Year** | **EPS (sh.)** | **DPS (sh.)** | **MPS (sh.)** | **EPS (sh.)** | **DPS (sh.)** | **MPS (sh.)** |
| 2002 | 4.00 | 1.60 | 12.00 | 4.00 | 1.80 | 13.50 |
| 2003 | 1.50 | 0.60 | 8.50 | 1.50 | 1.80 | 12.50 |
| 2004 | 5.00 | 2.00 | 13.50 | 5.00 | 1.80 | 12.50 |
| 2005 | 4.00 | 1.60 | 11.50 | 4.00 | 1.80 | 12.50 |
| 2006 | 8.00 | 3.20 | 14.50 | 8.00 | 1.80 | 15.00 |

**Required:**

(i) The pay-out ratio, dividend yield and earnings yield for both companies for each of the years shown above. (6 marks)

(ii) Analyze your computations in c (i) above to determine the possible reasons for the differences in market prices of the two companies` shares. (3 marks)

**(Total: 20 marks)**

**QUESTION FOUR**

(a) Kubwa ltd. is considering acquiring Ndogo ltd. through a share exchange. Under the terms of acquisition, Kubwa ltd. will offer one of its shares in exchange for every two shares in Ndogo ltd.

The summarized financial information relating to the two companies for the year ended 30 November 2007 are as shown below:

| | Kubwa ltd. | Ndogo ltd. |
|---|---|---|
| Profit after tax (sh.) | 150 million | 30 million |
| Number of shares | 25 million | 8 million |
| Earnings per share (sh.) | 6.00 | 3.75 |
| Market price per share (sh.) | 78.00 | 33.75 |
| Price earning ratio | 13.00 | 9.00 |

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**Required:**

(i) The earnings per share of the combined company after the merger (2 marks).

(ii) If the price-earnings ratio after the merger falls to 12, what would be the premium received by the shareholders of Ndogo ltd. (Using the combined company's new share price)? (3 marks)

(iii) If the price-earnings ratio after the merger falls to 12, would the merger be beneficial to the shareholders of Kubwa ltd.? Justify your answer. (2 marks)

(b) A ltd. Is targeting B ltd. The following defence strategies applicable in a hostile takeover situation:

(i) Crown jewels strategy. (3 marks)

(ii) Poison pill strategy (3 marks)

(iii) White night strategy. (3 marks)

(c) The following information relates to two firms; Bora ltd. And Beta lt.:

| Firm | sales (sh.) | Variable costs (sh.) | Fixed costs (sh.) |
|---|---|---|---|
| Bora ltd. | 1,800,000 | 450,000 | 900,000 |
| Beta ltd. | 1,500,000 | 750,000 | 375,000 |

**Required:**

(i) Degree of operating leverage for each firm. (2 marks)

(ii) Comment on how operating leverage has impacted on the earnings available to shareholders of each firm. (2 marks)

**(Total: 20 marks)**

**QUESTION FIVE**

(a) Market ventures ltd., an institutional investor, holds shares in four companies as shown below:

| Company | Number of shares held | Average market price per share (sh.) | Beta coefficient |
|---|---|---|---|
| A ltd. | 120,000 | 64.35 | 1.044 |
| B ltd. | 160,000 | 43.80 | 1.152 |
| C ltd. | 200,000 | 32.55 | 0.81 |
| D ltd. | 250,000 | 47.10 | 1.35 |

**Additional information:**

1. The expected return on equity for each of the shares is as follows:

| Company | Expected return (%) |
|---|---|
| A ltd. | 17.55 |
| B ltd. | 21.60 |
| C ltd. | 15.75 |
| D ltd. | 20.70 |

2. The expected market return is 17.1%.
3. The return on the 90-day Treasury bill is 9.9%.

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**Required:**

(i) Determine the required return on each of the shares in the four companies above and hence advise market ventures ltd. On the worth of each investment in the portfolio. (Round your figures to the nearest two decimal places). (4 marks)

(ii) Determine the expected return and the required return on the overall portfolio of market ventures ltd. And hence comment on the worth of the portfolio to the company. (Round your figures to the nearest two decimal places).

(b) Write brief notes on the following international money and capital markets:

(i) Eurodollar market. (4 marks)

(ii) International bond markets. (4 marks)

(iii) International stock markets. (4 marks)

**(Total: 20 marks)**

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# June 2007

**Answer ALL questions. ALL questions carry equal marks. Show ALL your workings.**

**QUESTION ONE**

(a) Outline the relationship between internal rate of return (IRR) and marginal cost of capital (MCC) in the context of capital budgeting. (4 marks)

(b) Biashara ltd. Is considering investing in one of three mutually exclusive projects whose cash flows are presented below:

| | **Cash flows** | | |
|---|---|---|---|
| **Year.** | **Project X sh."000"** | **project Y sh."000"** | **project Z sh."000"** |
| 0 | (15,000) | (11,000) | (19,000) |
| 1 | 6,000 | 6,000 | 4,000 |
| 2 | 6,000 | 4,000 | 6,000 |
| 3 | 6,000 | 5,000 | 8,000 |
| 4 | 6,000 | 2,000 | 12,000 |

**Additional information:**

1. the risk indices for the three projects are as shown below:

| Project | risk index |
|---|---|
| X | 1.8 |
| Y | 1.0 |
| Z | 0.6 |

2. The expected return on the market portfolio is 12%
3. The risk-free rate is 10%.
4. The company's overall beta is 2.5.

**Required:**

(i) Determine the company's cost of capital. (2 marks)

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(ii) Using the net present value (NPV) approach, advise the company on which project to invest in. (4 marks)

(c) The finance manager of Biashara ltd. has suggested that the three projects in (b) above should be analyzed using the risk adjusted discount rate (RADR). The finance manager has developed the following model to calculate the RADR for each project:

$RADR_j = R_f + RI_j (K_o - R_f)$

Where: $RADR_j$ = the risk adjusted discount rate for project j.
$R_f$ = risk free rate.
$RI_j$ = risk index for project j
$K_o$ = cost of capital for the company.

**Required:**

(i) The risk adjusted discount rate for each project. (3 marks)

(ii) NPV for each project using the risk adjusted discount rates computed in (c) (i) above. (3 marks)

(iii) Based on the NPVs determined in (b) (ii) and (c) (ii) above, advise the company on which project to pursue. Justify your answer. (4 marks)

**(Total: 20 marks)**

**QUESTION TWO**

The management of Mapema ltd. are in the process of determining the optimal capital budget of the company for the year ending 30 June 2008.

The following information is available:

1. The profit after tax for the year ending 30 June 2008 is estimated to be sh.22,500,000.
2. The dividend payout ratio is 40%
3. The ordinary shares of the company are currently trading on the stock exchange at sh.80 per share.
4. Ordinary shareholders expect a dividend of sh.6 per share for the year ending 30 June 2008.
5. The annual growth rate in dividend is 6% per annum.
6. Floatation costs amount to sh.8 per ordinary share issued.
7. The company could issue an unlimited number of 11% preference shares at sh.96 per share. The par value per share is sh.100.
8. The company could obtain bank loans of up to sh.24,000,000 at a pre-tax interest rate of 10% per annum.
9. Thereafter, an unlimited amount of bonds could be issued under the following terms:
   - Coupon interest rate 12% per annum.
   - Par value sh.1000 per bond.
   - Discount sh.30 per bond.
   - Floatation cost sh.20 per bond.
   - Maturity period ten years.
9. The optimal capital structure of the company comprises 15% debt, 40% preference share capital and 45% equity.
10. Corporation tax rate is 30%

**Required:**

(a) The cost of capital for each source of finance available to Mapema ltd. (5 marks)

(b) The break-point(s) in the marginal cost of capital (MCC) schedule with respect to retained earnings and debt. (4 marks)

(c) The marginal cost of capital at each break-point identified in (b) above. (4 marks)

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(d) The company has the following investment opportunities available for the year ending 30 June 2008

| Investment | Cost (sh."000") | Internal rate of return (IRR) |
|---|---|---|
| I | 10,000 | 11.2% |
| II | 50,000 | 9.7% |
| III | 15,000 | 12.9% |
| IV | 20,000 | 16.5% |
| V | 45,000 | 11.8% |
| VI | 60,000 | 10.1% |
| VII | 30,000 | 10.5% |

All the projects are divisible.

(i) With the aid of an IRR/MCC schedule, determine the project(s) that should be accepted by the company. (5 marks)

(ii) Determine the company's optimal capital budget for the year ending 30 June 2008.(2 marks)

**(Total: 20 marks)**

**QUESTION THREE**

(a) The international financial markets have witnessed an increased growth in financial innovations over the past three decades.

**Required:**

(i) Define the term "financial innovations". (4 marks)

(ii) Name four examples of financial innovations used in the international financial markets. (1 mark)

(iii) Explain the factors that have contributed to the growth in financial innovations. (6 marks)

(b) With the aid of a diagram, explain the three theories of the term structure of interest rates. (9 marks)

**(Total: 20 marks)**

**QUESTION FOUR**

(a) Explain the propositions by Modigliani and miller (MM) with respect to the effect of leverage on the overall cost of capital and value of a firm. (4 marks)

(b) Maisha ltd. And Bora ltd. Manufacture wall clocks. The selling price of each wall clock is sh.1,000 with a variable cost of sh 700. Each of the companies realizes average annual sales of sh.70,000,000 and incurs average fixed costs of sh.1,700,000 per annum.

However, the two companies differ in their capital structures as stated below:

- Maisha ltd. Is an all-equity financed company having issued 40,000 ordinary shares of sh.10 par value.
- Bora ltd. Is financed with 20,000 ordinary shares of sh.10 par value and a loan of sh.1,600,000 at an interest rate of 10% per annum.

The corporation tax rate is 30%.

**Required:**

(i) The degree of operating leverage and financial leverage for each company. (4 marks)

(ii) The degree of combined leverage for each company. (4 marks)

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(iii) The break-even point (in units) for each company. Comment on the significance of your results. (4 marks)

(iii) The earnings per share (EPS) at the point of indifference between the earnings of the two companies. (4 marks)

**(Total: 20 marks)**

**QUESTION FIVE**

(a) The following information relates to Alpha ltd. and Beta ltd. As at 31December 2006:

| | **Alpha ltd.** **Sh.** | **Beta ltd.** **Sh.** |
|---|---|---|
| Average annual sales | 700million | 80 million |
| Average annual net income | 75 million | 8 million |
| Earnings per share | 3 | 2 |
| Market price per share | 40 | 19 |

Alpha ltd. Intends to acquire Beta ltd through a share exchange. The number of issued ordinary shares of alpha ltd. and Beta ltd. were 25 million and 4 million respectively as at 31 December 2006.

**Required:**

(i) The maximum share exchange ratio that alpha ltd. should offer to the shareholders of Beta ltd. without diluting the earnings per share of Alpha ltd. (3 marks)

(ii) The premium that shareholders of Beta ltd. would receive using the share exchange ratio in (a) (i) above. (3 marks)

(b) Explain the alternative methods used to value shares of an acquiree company during a merger (8 marks)

(c) Furaha ltd. Had a retained earnings balance of sh.50 million as at 31 December 2006. The company's desired capital structure comprises 50% equity and 50% debt.

The cost of each source of capital available to the company is as follows:

| Source of capital | marginal cost |
|---|---|
| Retained earnings | 15% |
| New equity | 16% |
| New debt | 13% (net of tax) |

The company is currently analyzing seven investment projects whose details are presented below:

| **Investment project** | **Outlay** **SH."000"** | **Internal rate of return** **(IRR)** |
|---|---|---|
| A | 8,000 | 17% |
| B | 13,000 | 16.5% |
| C | 9,000 | 14.8% |
| D | 14,000 | 13.5% |
| E | 12,000 | 12.2% |
| F | 7,500 | 11.1% |
| G | 4,200 | 10.0% |

The company applies the residual dividend policy in its dividend payout decisions.

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**Required:**
The maximum dividend payable by Furaha ltd. (6 marks)
**(Total: 20 marks)**

……

# December 2006

**Answer ALL questions. ALL questions carry equal marks. Show ALL your workings.**

**QUESTION ONE**

(a) Briefly explain how the arbitrage process may lead to an equilibrium in the financial markets. (4 marks)

(b) Bora manufacturers ltd. Intends to purchase a processing machine costing sh.40 million. The machine is expected to have an economic life of two years with no salvage value at the end of its useful life.

To adjust for risk on this investment, probabilities have been attached to the expected cash flows over the two year period, as shown below:

| Year 1 | | Year 2 | |
|---|---|---|---|
| **Cash flow Sh.** | **Probability** | **Cash flow Sh.** | **Conditional probability** |
| | | 12 million | 0.2 |
| 25 million | 0.4 | 16 million | 0.3 |
| | | 22 million | 0.5 |
| | | 20 million | 0.4 |
| 30 million | 0.6 | 25 million | 0.5 |
| | | 30 million | 0.1 |

**Additional information:**

1. The cash flows in year 2 are conditional on the cash flows in year 1. All cash flows have been reported on an after-tax basis.
2. The cost of capital is 10%
3. Ignore depreciation.

**Required:**

(i) A decision tree of the investment project. (3 marks)

(ii) The best possible net present value (NPV) of the project and its probability of occurrence (2 marks)

(iii) The worst possible NPV of the project and its probability of occurrence. (2 marks)

(iv) Expected NPV. (2 marks)

(v) Advise the management of Bora Manufacturers ltd. On whether the processing machine should be purchased (1 mark)

(c) Highlight the arguments for the use of interest rate swaps in international financial markets. (6 marks)
**(Total: 20 marks)**

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**QUESTION TWO**

(a) Outline the factors that should be considered by a company in determining its target capital structure. (4 marks)

(b) Biashara ltd. is financed by debt and equity. The company is in the process of determining the optimal capital structure that will minimize its weighted cost of capital.

The cost of debt at various levels of leverage is as follows:

| Debt to asset ratio | Debt to equity ratio | Cost of debt (before tax) |
|---|---|---|
| 0 | 0 | 7% |
| 0.2 | 0.25 | 8% |
| 0.4 | 0.67 | 10% |
| 0.6 | 1.50 | 12% |
| 0.8 | 4.0 | 15% |

**Additional information:**

1. The company uses the capital asset pricing model (CAPM) to estimate the cost of equity.
2. The risk free rate is 5% and the market risk premium is 6%.
3. The rate of corporate tax is 30%
4. The unlevered beta is 1.2.

**Required:**

The company's optimal capital structure.

**Note: $\beta_L = \beta_u [1+(1-T) (^D/_E)]$.**

Where: $\beta_L$= levered beta.
$\beta_u$ = unlevered beta.
T = tax rate.
D = market value of debt.
E = market value of equity.

(C) Summarize the factors that influence the level of risk diversification in a portfolio (4 marks)

**(Total: 20 marks)**

**QUESTION THREE**

(a) Multinational corporations (MNCs) should analyze the effects of political risk on their investments in developing countries.

(i) Identify and briefly explain the different forms of political risk. (4 marks)

(ii) Suggest the measures that MNCs should take to minimize their exposure to political risk. (4 marks)

(b) The current market price per ordinary share of spark international ltd. is sh.29. A call option exists on the company's shares with an exercise price of sh.26 and with six months to maturity.

The option can only be exercised on maturity.

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

**Required:**

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

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Note: the following values may be useful:

$\text{Log}_e \quad 1.1154 = 0.1092$

$e^{-0.03} = 0.97$

(c) The following balance sheet relates to Mapato ltd. For the year ended 31 October 2006

| | **Sh."000"** |
|---|---|
| **Assets:** | |
| Non-current assets | 40,000 |
| Current assets | 20,000 |
| Total assets | 60,000 |
| | |
| **Equity and liabilities:** | |
| Ordinary share capital (sh.20 par) | 10000 |
| Retained earnings | 14,000 |
| 16% debentures (sh.100 par) | 24,000 |
| Current liabilities | 12,000 |
| Total equity and liabilities | 60,000 |

**Additional information:**

1. The company's earnings before interest and tax average sh.16 million per annum.
2. The current market price per share is sh.90.
3. The corporation tax rate is 30%
4. All the company's profits are distributed as dividends.

Assume that all the assumptions of the traditional theory of capital structure hold, except for the existence of taxes.

**Required:**

The company's market-weighted average cost of capital using the traditional theory. (6 marks)

**(Total: 20 marks)**

**QUESTION FOUR**

(a) Briefly explain the pecking order theory of capital structure. (3 marks)

(b) Jaribu ltd. has in issue a convertible debenture with a coupon rate of 12%. Each sh.100 debenture may be converted into 20 ordinary shares at any time before the 5-year maturity period of the debentures. Any remaining debentures on maturity will be redeemed at sh.100 each.

Investors require a rate of return of 8% per annum on a five year debt security.

**Required:**

Should the debenture holders convert their debentures into shares if the current market price per share is:

(i) sh.4? (3 marks)
(ii) sh.5? (2 marks)
(iii) sh.6? (2 marks)

(c) The return of Malibu oil ltd`s ordinary shares has been found to be influenced by three risk factors; $X_1$, $X_2$ and $X_3$.

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These factors are explained below:

$X_1$ – an index reflecting energy costs.
$X_2$ – changes in the level of stock market prices.
$X_3$ – changes in the exchange rate of the local currency relative to other currencies:

The risk premium and the beta associated with each risk factor are shown below:

| **Risk factor** | **Risk premium** | **Beta** |
|---|---|---|
| $X_1$ | 4.5% | 0.7 |
| $X_2$ | 7.5% | 0.3 |
| $X_3$ | 11.25% | 1.1 |

The risk free rate is 8.25%.

**Required:**
Determine the required rate of return on Malibu oil ltd. `s shares using:

(i) Arbitrage pricing model (APM) (3 marks)
(ii) Capital asset pricing model (CAPM) (3 marks)

(d) Highlight the main arguments for mergers and acquisitions. (4 marks)

**(Total: 20 marks)**

**QUESTION FIVE**

(a) Write short notes on the following international financial institutions:

(i) International bank for reconstruction and development (IBRD) (5 marks)

(ii) International monetary fund (IMF) (5 marks)

(b) An investor has an investment fund of sh.1,000,000. He intends to apportion this fund to two securities, A and B, as follows; sh.200,000 in security A and sh.800,000 in security B.

The return on each security is dependent on the state of the economy as shown below:

| **State of economy** | **Probability** | **Return on security A** | **Return on security B** |
|---|---|---|---|
| Boom | 0.4 | 18% | 24% |
| Average | 0.5 | 14% | 22% |
| Recession | 0.1 | 12% | 21% |

**Required:**
(i) Expected return on the portfolio. (2 marks)
(ii) Standard deviation for each security. (4 marks)
(iii) Correlation coefficient between security A and security B. (2 marks)
(iii) Assess the extent of risk diversification by the investor through the portfolio holding. (2 marks)

**(Total: 20 marks)**

**……**

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# June 2006

**Answer ALL questions. ALL questions carry equal marks. Show ALL your workings.**

**QUESTION ONE**

(a) "Since capital investments provide a return over a period of several years, it is important to consider the likely effects of inflation in assessing the financial viability of an investment".

Explain the above statement. (4 marks)

(b) Microlin ltd. Intends to introduce a new product, T, into the market. This will require an investment in machinery costing sh.2,400,000. the machinery is estimated to have a useful life of four years with a terminal value of sh.600,000

**Additional information:**

1. Capital allowances will be provided on the machinery at a rate of 12.5% per annum on a reducing balance basis. At the end of the useful life of the machinery, a balancing charge or allowance will arise equal to the difference between the scrap proceeds and the tax written down value.
2. Annual profits from the sale of product T will amount to sh.960,000 before deducting depreciation on machinery.
3. Corporation tax at a rate of 30% is payable one year after the end of the accounting year in which the tax was charged.
4. An investment in working capital amounting to sh.240,000 will be required on commencement of the project. This amount will however be recovered on completion of the project.
5. The start of the project coincides with the start of the company's financial year.
6. The cost of capital is 15% per annum.

**Required:**

Using the net present value (NPV) approach, advice the management on the suitability of the project. (10 marks)

(c) The management of Sawara ltd., a medium-sized company, is concerned that the company has continued to incur high labour and material costs in its production process. The management is therefore considering the acquisition of an equipment that will generate savings in labour and material costs.

**Additional information:**

1. The equipment will cost sh.1,050,000 and will have a useful life of five years with a nil scrap value.
2. Annual savings in labour and material costs will amount to sh.150,000 and sh.60,000 respectively.
3. The forecast annual rates of inflation for the next five years are as follows:

| | |
|---|---|
| Wage costs | 10% |
| Material costs | 5% |
| General prices | 6% |

4. The cost of capital of the company, in money terms, is 15%

**Required:**

Evaluate the project using the net present value (NPV) method and advise the management accordingly. (6 marks)

**(Total: 20 marks)**

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**QUESTION TWO**

(a) Briefly explain the following capital structure theories:

(i) Traditional theory. (3 marks)
(ii) Modigliani and miller (MM) with taxes theory. (3 marks)

(b) Altd. and Bltd. Are identical in all respect with the exception that A ltd. is unlevered while B ltd. has issued a sh.10 million 5% corporate bond.

The earnings before interest and tax (EBIT) for the two companies are sh.2 million per annum and the cost of equity of A ltd. is 10%.

**Required**

Using the Modigliani and Miller (MM) without taxes model, answer the following:

(i) Determine the value of each company. (2 marks)
(ii) Determine the cost of equity of B ltd. (2 marks)
(iii) Determine the weighted average cost of capital of each company. (2 marks)
(iv) Suppose the value of Altd. Is sh.20million and that of B ltd. Is sh.22 million, determine the arbitrage opportunity available to a shareholder who owns 10% of the ordinary shares in B ltd. (4 marks)

(c) Solei ltd. expects to pay a dividend per share (DPS) of sh.1.2 for the year ending 31 December 2006. The annual growth rate in DPS is expected to be 15% per annum for the period between 1 January 2006 and 31 December 2010. Thereafter, the growth rate is expected to be 10% per annum.

The required rate of return on investments is 15% per annum.

**Required:**

Calculate the value of an ordinary share in Solei ltd. as at 1 January 2006. (4 marks)

**(Total: 20 marks)**

**QUESTION THREE**

**(**a) "Retained earnings represent a cost-free source of capital to a company".

State, giving reasons, whether you agree with the above statement. (6 marks)

(b) Myers ltd. Is financed 75% by equity and 25% by debt. The management of the company intends to maintain this financing mix.

The marginal cost of debt and equity at different levels of additional finance are shown below:

| Source of finance | Amount | Marginal cost (per annum) |
|---|---|---|
| Debt: | up to sh.1, 000,000 | 16% |
| | Next sh.1, 000,000 | 18% |
| Equity: | up to sh.2, 500,000 | 20% |
| | Next sh.2, 500,000 | 25% |
| | Over sh.5, 000,000 | 30% |

**Required:**

Calculate the marginal cost of capital of the company at all the critical levels of additional financing. (Ignore taxation) (8 marks)

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(c) The summarized balance sheet of Katito ltd. As at 31 December 2004 is presented below:

| | Sh. | | Sh. |
|---|---|---|---|
| Fixed assets | 5,000,000 | ordinary share capital | 8,000,000 |
| Current assets | 2,500,000 | | |
| Profit and loss account balance | 500,000 | | |
| | 8,000,000 | | 8,000,000 |

**Additional information:**

1. the company's profit and loss account for the year ended 31 December 2005 reflected a net profit of sh.1000000 before providing for dividend.
2. The net realizable value of fixed assets as at 31 December 2005 was sh.7500000. These values were however not incorporated in the books of account.
3. There are no additions or disposals of fixed assets during the year ended 31 December 2005.

**Required:**

Determine the maximum amount of dividend (if any), that the company can declare for the year ended 31 December 2005. Justify your answer. (6 marks)

**(Total: 20 marks)**

**QUESTION FOUR**

The balance sheet of two companies, A ltd. And Bltd., as at 31 December 2005 are shown below:

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

**Additional information**

1. Altd. Is proposing to acquire B ltd. By means of an issue of its own ordinary shares in exchange for the ordinary shares of B ltd.
2. The management of the two companies have availed the following information to assist in the takeover:

| | **A ltd.** | **B ltd.** |
|---|---|---|
| Maintainable annual profits after tax attributable to equity holders' | sh.2,400,000 | sh.1,500,000 |
| Current market price per ordinary share | sh.24 | sh.27 |
| Current earnings per share | sh.2.4 | sh.3.0 |
| Price earning ratio | 10 | 9 |

3. The corporation tax rate is 30%

**Required:**

(a) Using the following valuation bases, and assuming no synergy effects accrue from the takeover, determine the total number of shares the directors of A ltd. will have to offer to shareholders of B ltd.

(i) Net asset value basis. (3 marks)
(ii) Earning per share basis. (3 marks)
(iii) Market value basis. (3 marks)
(iv) Present value of future earnings basis. (3 marks)

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(b) Assume the combined entity will earn annual profits attributable to equity holders of sh.4,485,000 and that the combined price earning ratio will be 12. determine the market value of A ltd`s ordinary shares after the takeover. (3 marks)

(c) Explain why the directors of A ltd. Might have preferred growth by takeover over growth by asset expansion. (5 marks)

**(Total: 20 marks)**

**QUESTION FIVE**

(a) Explain the following financial derivatives used in the international financial markets:

(i) Futures contracts. (3 marks)
(ii) Forward contracts. (3 marks)
(iii) Options. (3 marks)
(iv) Swaps. (3 marks)

(b) An investor expects a risk-free rate of return ($r_f$) of 4.5% per annum and a market rate of return ($r_m$) of 14.5% per annum.

Two stocks, A and B, have the following betas and estimated returns:

| Stock | Beta | Estimated returns |
|---|---|---|
| A | 1.2 | 16% |
| B | 0.8 | 14% |

**Required:**

(i) Assuming stock A and stock B are fairly valued under the capital asset pricing model (CAPM), use a graph to indicate the points where the stocks would be plotted on the security market line (SML) (6 marks)
(ii) State whether stock A and stock B are undervalued or overvalued. (2 marks)

**(Total: 20 marks)**

**……..**

# December 2005

**Answer ALL questions. ALL questions carry equal marks. Show ALL your workings.**

**Question One**

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

The following additional information is available:

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

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

i) The market value of A Ltd. and B Ltd. (6 marks)
ii) The weighted average cost of capital of A Ltd and B Ltd. (4 marks)

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

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

**Option one:** Issue an 11% debenture stock
**Option two:** Issue 13% cumulative preference shares
**Option three:** Issue additional ordinary shares of Sh.10 par value.
The corporation tax rate is 30%.
**Required:**
Calculate the earnings before interest and tax (EBIT) and the earnings per share (EPS) at the point of indifference between the following financing options:

(i) Option one and option three (6 marks)
(ii) Option two and option three (4 marks)
**(Total: 20 marks)**

**Question Two**
a) Distinguish between one-period rationing and 'multi-period rationing' with specific reference to capital rationing (4 marks)

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

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

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

**Required:**
(i) Using the net present value (NPV) approach, determine which project(s) should be undertaken assuming capital will be available when required. (8 marks)
(ii) Using the NPV approach, determine which project(s) should be undertaken assuming capital available on 1 January 2006 is limited to Sh.100 million (8 marks)
**(Total: 20 marks)**

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**Question Three**

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

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

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

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

**Required:**

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

**(Total: 20 marks)**

**Question Four**

(a) In the context of international financial management:

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

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

**(Total: 20 marks)**

**QUESTION FIVE**

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

**Required:**

**(**i) Explain the term "securitisation". (4marks)
(ii) Discuss the benefits that may accrue to a company that uses securitisation in preference to traditional financing through intermediaries. (6 marks)

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

**The following information is provided:**

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

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

(i) Pure residual policy (2 marks)
(ii) Constant payout ratio policy (2 marks)
(iii) Stable predictable dividend policy, the growth rate being equivalent to the earnings growth rate. (2 marks)
(iv) Regular plus extra dividend policy. The regular dividends would be based on the long run growth rate of earnings while the extra dividends would be based on the residual income (4 marks)

**(Total: 20 marks)**

.....

# June 2005

**Answer ALL questions. ALL questions carry equal marks. Show ALL your workings.**

**Question One**

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

**Required:**
i) Explain the main determinants of shareholder value (6 marks)
(ii) Discuss tile factors that have stimulated the increased interest by companies in value based management systems (8 marks)

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

**Required:**

i) Calculate the theoretical value of a right in Madawa Company Limited (2 marks)
ii) Determine the theoretical ex-rights price of a share in the company (4 marks)

**(Total: 20 marks)**

## Question Two

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

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

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**The following additional information is available:**

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

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

7. Assume a corporation tax rate of 30%

**Required:**

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

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

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

**(Total: 20 marks)**

**QUESTION THREE**

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

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

**Required:**

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

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

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

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

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

**Required:**

(i) Determine the risk associated with the investment in each of the three sectors above. (6 marks)

(ii) Determine the expected portfolio return (2 marks)

**(Total: 20 marks)**

**QUESTION FOUR**

(a) Distinguish between the residual dividend theory' and clientele preference theory as they relate to dividend policy formulation (4 marks)

(b) Discuss the Modigliani and Miller's (MM) dividend irrelevancy proposition (10 marks)

(c) Huge Ltd. is contemplating a complete share acquisition of Tiny Ltd. Huge Ltd is offering three of its shares for every two shares of Tiny Ltd. The data is relating to the two companies are shown below:

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

The corporate tax rate is 30%

**Required:**

(i) Determine the maximum offer price that will not dilute the EPS of Huge Ltd. (2 marks)

(ii) Compute the premium payable to the shareholders of Tiny Ltd (2 marks)

(iii) Given that the growth rate of Huge Ltd. is 8% while that of Tiny Ltd is 12%, compute the combined growth rate of the two companies (2 marks)

**(Total: 20 marks)**

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**QUESTION FIVE**

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

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

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

(c) Cotts Importers Ltd, a company based in Kenya, has been a regular importer of goods from the United States of America (USA). The Kenyan currency is the Shilling (Sh.) while the USA currency is the dollar ($) on1 June 2004, Cotts Ltd imported a consignment of goods from a supplier in the USA. The consignment cost $1,000 and was payable on 1 September 2004.

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

| | $/Sh. |
|---|---|
| 1 June | 0.007 |
| 1 September | 0.006 |

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

**Required:**

(i) Show how Cotts Ltd could have used a futures contract as a hedging tool, indicating any hedging profit or loss. (6 marks)
( ii) How many futures contracts would Cotts Ltd. have purchased if the contract size was Sh.2 million? (2 marks)

**(Total: 20 marks)**

……

# December 2004

**Answer ALL questions. ALL questions carry equal marks. Show ALL your workings.**

**QUESTION ONE**

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

**Required:**

Explain the main issues you would address in your paper under the following headings:
(i) Phases of a public project. (4 marks)
(ii) Planning and control techniques for a public project. (4 marks)
(iii) Causes of failure of public projects. (2 marks)

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

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

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**Required:**

(i) Using the Modigliani and Miller (MM) model, show that the payment of dividends does not affect the value of the firm. (8 marks)

(ii) What are the assumptions inherent in the MM model? (2 marks)

**(Total: 20 marks)**

**QUESTION TWO**

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

**Required:**

(i) Define risk management as used in finance. (2 marks)

(ii) Discuss reasons why risk management might increase shareholders wealth. (8 marks)

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

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

**Additional information:**

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

**Required:**

(i) Determine the optimal allocation of the Sh. 40 million amongst the five projects. (8 marks)

(ii) What is the net present value resulting from this allocation? (2 marks)

**(Total: 20 marks)**

**QUESTION THREE**

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

**Required:**

(i) Highlight two arguments for and against a high dividend payout policy. (4 marks)

(ii) Using a constant growth dividend discount model, evaluate the director's statement. (6 marks)

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

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

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

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

**Required:**
Calculate the present value of the company as on 1 January 2004. (10 marks)
(**Total: 20 marks**)

**QUESTION FOUR**

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

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

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

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

Foreign exchange rates

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

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

**Required:**

(i) Using suitable computations, illustrate two hedging strategies available to High speed Electronics Limited. (8 marks)
(ii) Distinguish between a currency option and a currency swap. (2 marks)
(**Total: 20 marks**)

**QUESTION FIVE**

(a) With reference to the measurement of portfolio risk, distinguish between Portfolio theory and the Capital Asset Pricing Model (CAPM). (4 marks)
(b) The following details relating to Bidii Limited show how the level of gearing affects the company's cost of debt.

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

**Required:**

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

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

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

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

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

**Required:**

(i) Compute the expected return from the market ($R_m$). (2 marks)
(ii) Calculate the beta coefficient for the portfolio ($\beta_p$). (4 marks)
(iii) Determine the equation for the security market line. (4 marks)
(**Total: 20 marks**)

……

# June 2004

**Answer ALL questions. ALL questions carry equal marks. Show ALL your workings.**

**QUESTION ONE**

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

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

**Required:**

(i) Calculate the theoretical ex-rights price of Moon Company Ltd.'s equity shares. (1 mark)
(ii) The theoretical value of a right of the Moon Company Ltd. before the shares sell ex-rights. (2 marks)

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

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

**Required:**

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

(ii) A statement showing the effect of the rights issue on this particular shareholder's wealth, assuming:
- He sells all the rights.
- He exercises one half of the rights and sells the other half.
- He does nothing at all. (6 marks)

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

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

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

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

**Required:**

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

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

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

| **Security** | **Factor sensitivity** | **Proportion** |
|---|---|---|
| A | 4.0 | 0.3 |
| B | 2.6 | 0.7 |

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

(**Total: 20 marks**)

**QUESTION TWO**

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

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

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

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

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

The cost of capital is 1% per month compound.

**Required:**

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

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

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

(**Total: 20 marks**)

**QUESTION THREE**

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

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

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

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

**Required:**

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

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

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

(**Total: 20 marks**)

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**QUESTION FOUR**

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

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

| | | |
|---|---|---|
| 1 million sales | = | 0.3 |
| 0.7 Million sales | = | 0.4 |
| 0.2 Million sales | = | 0.3 |

9. If the first year is successful in both countries then two possibilities are envisages.
   - Sales levels are maintained at 1 million units per annum for the next 10 years – probability of 0.3.
   - The product is seen as a temporary fad and sales fall to 100,000 units for the remaining 10 years – probability of 0.7.
10. If success is achieved in only one country in the first year, then for the remaining 10 years there is:
    - A 0.4 probability of maintaining the annual sales at 700,000 units and
    - A 0.6 probability of sales immediately falling to 50,000 units per year.

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

**Assume:**

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

**Required:**

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

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

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

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

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**Required:**

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

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

Calculate Orchard Farms' current market rate. (3 marks)

(**Total: 20 marks**)

**QUESTION FIVE**

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

(i) Forward rate agreement. (2 marks)
(ii) Interest rate futures (2 marks)
(iii) Interest rate options. (2 marks)
(iv) Interest rate swaps. (2 marks)

(b) (i) What assumption underlies the capital asset pricing model (CAPM)? (5 marks)
(ii) Many of the underlying assumptions of CAPM are violated in the real world. Does that fact invalidate the model's conclusions? Explain. (4 marks)

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

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

**Required:**

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

(**Total: 20 marks**)

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# December 2003

**Answer ALL questions. ALL questions carry equal marks. Show ALL your workings.**

**QUESTION ONE**

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

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

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

**Required:**

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

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

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

**(Total: 20 marks)**

**QUESTION TWO**

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

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

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

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

**(Total: 20 marks)**

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**QUESTION THREE**

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

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

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

**Required:**

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

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

**(Total: 20 marks)**

**QUESTION FOUR**

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

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

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

**Required:**

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

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

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

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**Required:**

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

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

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

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

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

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

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

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

More efficient utilization of Sauce Ltd.'s assets could generate operating savings of Sh.5, 000,000 per annum after tax.

**Required:**

(i) Current market value of Sauce Ltd.'s share. (2 marks)
(ii) Explain why the market value might differ from the book value. ( 2 marks)
(iii) A company experiencing ordinary growth has high liquidity and much unused borrowing capacity. (2 marks)
(iv) The value of Sauce Ltd. using the discounted cash flow method. (2 marks)

**(Total: 20 marks)**

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**QUESTION FIVE**

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

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

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

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

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

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

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

(i) Simulation analysis. (3 marks)

(ii) Sensitivity analysis. (3 marks)

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

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

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

**Required:**

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

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

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

**(Total: 20 marks)**

……

# June 2003

**Answer ALL questions. ALL questions carry equal marks. Show ALL your workings.**

**QUESTION ONE**

(a) The Development Company of Kenya Ltd. has operated very successfully over the past few years despite the adverse economic situation. As a result, the company has a good liquidity position and a relatively

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advantageous stock exchange valuation. The chairman of the company has suggested that because of this, it should look for growth through a vigorous acquisition policy.

**Required:**

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

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

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

Historical equity earnings and dividends:

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

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

**Required:**

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

(**Total: 20 marks)**

**QUESTION TWO**

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

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

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

The expected residual value of the assets is zero.

**Required:**

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

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

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

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

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

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

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

**(Total: 20 marks)**

**QUESTION THREE**

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

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

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

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

**Required:**

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

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(b) Briefly discuss the suitability of equity, loans and convertible debentures for the purpose of financing the project from the point of view of:

(i) Juma Company Ltd. (3 marks)

(ii) The provider of finance. (3 marks)

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

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

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

The current market return is 19% a year and Treasury bill yield is 11% a year.
**Required:**
On the basis of the data given above, calculate the risk of Butere Sugar Company Ltd.'s short-term investment portfolio relative to that of the market. (6 marks)
**(Total: 20 marks)**

**QUESTION FOUR**

(a) Discuss the role of financial management in an international setting with particular reference to:

(i) Currency exchange rates. (4 marks)

(ii) Sources of finance (4 marks)

(iii) Investing in overseas countries. (4 marks)

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

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

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

The exchange commission is Ksh.10 per Ksh.1, 000 (maximum Sh.1, 000,000) on each transaction.

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**Required:**

Calculate (to the nearest Ksh.) the profit that the merchant made during the transaction. (8 marks)

**(Total: 20 marks)**

**QUESTION FIVE**

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

(b) What are the advantages and disadvantages of a rights issue from the point of view of:

(i) The issuing company? (3 marks)

(ii) The shareholders? (3 marks)

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

**(Total: 20 marks)**

……

# December 2002

**Answer ALL questions. ALL questions carry equal marks. Show ALL your workings.**

**QUESTION ONE**

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

(b) Tom Donji an investment specialist has been entrusted with Sh.10 million by a unit trust and instructed to invest the money optimally over a two-year period. Parts of the instructions are that:
The funds be invested in one or more of four specified projects and in the money market
The four projects are not divisible and cannot be postponed.
The unit requires a return of 24% over the two years.

The following are details of the investment in the projects and the money market.

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

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

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

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

**Required:**

By analysing the two-asset portfolios:

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

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

**QUESTION TWO**

Safariloam Limited issued a Sh.100 million par value, 10-year bond, five years ago. The bond was issued at a 2 per cent discount and issuing costs amounted to Sh.2 million. Due to the decline in Treasury bill rates in the recent past, interest rates in the money market have been falling presenting favourable opportunities for refinancing. A financial analyst engaged by the company to assess the possibility of refinancing the debt reports that a new Sh.100 million par value, 12 per cent, 5-year bond can be issued by the company. Issuing costs for the new bond will be 5 per cent of the par value and a discount of 3 per cent will have to be given to attract investors. The old bond can be redeemed at 10 per cent premium and in addition, two months interest penalty will have to be paid on redemption. All bond issue expenses (including the interest penalty) are amortised on a straight-line basis over the life of the bond and are allowable for corporate tax purposes.

The applicable corporate tax rate is 40 per cent and the after tax cost of debt to the company is approximately 7%.

**Required:**

(a) Cash investment required for the refinancing decision. (9 marks)

(b) Annual cash benefits (savings) of the refinancing decision. (6 marks)

(c) (i) Net Present Value (NPV) of the refinancing decision. (13 marks)

(ii) Is it worthwhile to issue a new bond to replace the existing bond? Explain. (2 marks)

**(Total: 20 marks)**

**QUESTION THREE**

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

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

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

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

If the company decides to launch the new drug, it is possible for production to commence immediately. The equipment required to produce the drug is already owned by the company and originally cost Sh.150 million. At

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the end of the drug life, the equipment could be sold for Sh.35 million. If the company decides against the launch of the new drug, the equipment will be sold immediately for Sh.85 million as it will be of no further use to the company.
The new drug requires two hours of direct labour for each 500 mg capsule produced. The cost of labour for the new drug is Sh.4 per hour. New workers will have to be recruited to produce the new drug. At the end of the life, the workers are unlikely to be offered further employment with the company and redundancy costs of Sh.10 million are expected. The cost of ingredients for the new drug is Sh.6 per 500mg capsule. Additional overheads arising from the production of the drug are expected to be Sh.15 million per annum. Additional work capital of Sh.2 million will be required during the drug's 4-year life.

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

**Required:**

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

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

**QUESTION FOUR**

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

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

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

**Required:**

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

**(Total: 20 marks)**

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**QUESTION FIVE**

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

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

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

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

**(Total: 20 marks)**

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