kasneb

# ATD LEVEL II

## FUNDAMENTALS OF FINANCE

**TUESDAY: 22 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) Distinguish between a "risky asset" and a "risk-free asset". (2 marks)

(b) In relation to financial markets, describe four characteristics of a good market. (8 marks)

(c) Stanely Kamaki is considering buying ordinary shares of ABC Ltd. which are currently trading at a market price per share (MPS) of Sh.25. The forecasted market price of each share after one year and their probability of occurrence in different states of nature are given as follows:

| State of nature | Probability | Forecasted MPS at the end of the year |
|---|---|---|
| Boom | 0.4 | 30 |
| Average | 0.3 | 28 |
| Recession | 0.3 | 20 |

**Required:**

(i) The expected rate of return from investment in the shares. (4 marks)

(ii) The standard deviation of the expected return. Comment on the result. (4 marks)

(iii) Coefficient of variation. (2 marks)

**(Total: 20 marks)**

### QUESTION TWO

(a) Discuss four differences between Islamic banking and conventional banking. (8 marks)

(b) Johnstone Muli plans to retire in 15 years time and intends to receive an annuity of Sh.50,000 per annum for the next 20 years after retirement. The annual interest rate is 6%. He expects to receive the first annuity payment at the end of the $15^{th}$ year from today which is the same day as his retirement date.

**Required:**

The amount that he should invest today in order to receive his expected retirement annuity. (6 marks)

(c) Fanisi Limited borrowed Sh.10,000,000 from Nisil Bank Ltd. The loan has an interest rate of 14% and it is to be repaid in four equal instalments payable at the end of each year for the next four years.

**Required:**

Prepare a loan amortisation schedule. (6 marks)

**(Total: 20 marks)**

### QUESTION THREE

(a) Explain three types of dividend policy that could be adopted by firms in your country. (6 marks)

(b) The earnings per share (EPS) and dividend per share (DPS) for Mogotio Ltd. for each of the years ended 31 December 2014, 2015, 2016 and 2017 were as follows:

| Year ended 31 December | EPS (Sh.) | DPS (Sh.) |
|---|---|---|
| 2014 | 12.50 | 5.50 |
| 2015 | 14.60 | 6.05 |
| 2016 | 13.50 | 6.66 |
| 2017 | 16.00 | 7.32 |



**Required:**
The dividend cover and the dividend payout ratio for each of the years ended 31 December 2014, 2015, 2016 and 2017. (4 marks)

(c) Online Ltd. sells goods currently in terms of "net 45". The firm is considering relaxing its terms of sale to "net 60". The firm's annual sales is currently estimated at Sh.5,000,000. However, it is expected to increase by 20% if the terms of sale are relaxed. The variable cost to sales ratio is 40%.

**Additional information:**
1. Bad debts are expected to remain at 5% of the firm's credit sales.
2. Debt management and collection expenses are expected to increase by 5% per annum from the current level of Sh.400,000.
3. Credit sales are estimated to be 80% of total sales. The remainder of the sales are cash sales.
4. The minimum required rate of return by investors is 12% per annum.
5. Corporate tax rate applicable is 30%.
6. The average collection period is currently 50 days. This is expected to increase to 75 days after relaxing the terms of sale.

(Assume a 360-day year)

**Required:**
Determine whether the firm should relax its terms of sale. (10 marks)
**(Total: 20 marks)**

## QUESTION FOUR

(a) In relation to the goals of a firm, discuss the following:

(i) Two financial objectives of a firm. (4 marks)

(ii) Two non-financial objectives of a firm. (4 marks)

(b) Upendo Ltd. is contemplating raising an additional Sh.5,000,000 to finance an expansion programme. The firm's capital structure which is considered to be optimal is given as follows:

| | Sh."000" |
|---|---|
| Ordinary share capital (Sh.10 par value) | 10,000 |
| Reserves | 5,000 |
| 14% debenture capital (Sh.100 par value) | 6,000 |
| 15% preference share capital (Sh.20 par value) | 9,000 |
| | 30,000 |

**Additional information:**
1. New ordinary shares will be issued at Sh.50 each, subject to a floatation cost of 10% of issue price. The firm's dividend policy is that future dividends are expected to grow at 5% each year in perpetuity. The firm paid dividend of Sh.2 per share in the current year.
2. New 14% irredeemable debentures will be issued at Sh.120 each. Floatation cost of Sh.5 per unit issued will be incurred.
3. New 15% preference shares will be issued at par. A floatation cost of Sh.2 per share issued will be incurred.
4. Corporate tax rate applicable is 30%.
5. The firm expects to generate Sh.1,000,000 from internal sources to finance this expansion programme.

**Required:**
Weighted marginal cost of capital (WMCC) of the firm. (12 marks)
**(Total: 20 marks)**

**QUESTION FIVE**

(a) A vast range of funding alternatives are available to companies for financing development projects.

In the light of the above statement, summarise four factors to consider when choosing methods of financing a project. (8 marks)

(b) Majani Limited intends to raise a long-term debt amounting to Sh.18,000,000 at an interest rate of 14% per annum. The money could be invested in either project A or project B. The projects are expected to generate the following net cash inflows:

| Period (year) | Project A Sh. | Project B Sh. |
|---|---|---|
| 1 | 3,000,000 | 8,000,000 |
| 2 | 1,000,000 | 7,500,000 |
| 3 | 4,000,000 | 5,000,000 |
| 4 | 6,000,000 | 2,000,000 |
| 5 | 8,000,000 | 4,500,000 |

**Required:**

(i) The net present value (NPV) for each project. (8 marks)

(ii) Giving appropriate reason(s), advise the management of Majani Ltd. on the project to invest in. (2 marks)

(iii) Highlight two disadvantages of using the NPV to evaluate investment projects. (2 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 |