



ZIMBABWE EZEKIEL GUTI UNIVERSITY
FACULTY OF BUSINESS, ECONOMICS AND ACCOUNTING
DEPARTMENT OF BUSINESS ADMINISTRATION AND MANAGEMENT

EXAMINATION PAPER

COURSE CODE : CBM 204
COURSE TITLE : BUSINESS FINANCE
SPECIAL REQUIREMENTS : Non-Programmable Calculator,
Formula Booklet
Financial Tables
DURATION : 3 Hours
LEVEL : 2.2 **05 JUL 2022**
DATE :

INSTRUCTIONS TO CANDIDATES:

1. No cell phones are allowed in the examination venue.
2. Answer **any four** questions
3. The number of marks for each question or part question is shown in brackets []
4. Show all your workings in order to gain full marks.
5. Begin each answer on a new page.

QUESTION ONE

China-Africa is a large minerals processing corporation, whose owners (shareholders) are not usually directly involved in making business decisions, especially on a day-to-day basis. Instead, the corporation employs managers to represent the owners' interests and make decisions on their behalf so as to stay in line with the objectives of the firm.

- a) Explain the major responsibilities of a financial manager. [5 marks]
- b) Explain the principal-agent relationship in a corporation. [3 marks]
- c) State any 5 objectives or goals of a firm. [5 marks]
- d) Explain any four sources of finance that a limited company may consider. [8 marks]
- e) Distinguish between primary and secondary capital markets. [4 marks]

QUESTION TWO

Kitchnet public limited company has a net working capital of \$70 000, non-current assets of \$50 000, and equity equal to \$80 000 in its annual report.

- a) Define working capital. [2 marks]
- b) What are the non-current liabilities of Kitchnet public limited? Show all workings and formula [5 marks]
- c) What are the 3 sources of cash flow in a business [3 marks]
- d) Who reads the annual reports for corporations or public limited companies and why? [15 marks]

QUESTION THREE

- a) What are financial ratios and why are they calculated? [2 marks]

The following are financial statements for Tina & Taka plc. Ltd for 2020

Income statement for Tina & Taka public limited co for period ended 2020	
	\$ million
Revenue	18,000
Cost of revenue (cost of goods sold)	<u>6,000</u>
Gross profit	12,000

Operating expenses	<u>6,600</u>
Operating profit	5,400
Interest expense	<u>1,800</u>
Profit before tax	3,600
Taxation	<u>180</u>
Profit for the year(=net income)	3,420

Statement of financial position for Tina & Taka public limited co as at 31 December 2020
(figures in \$ million

Cash and short term investments 1,100	Trade payables 3,000
Accounts receivable 2,500	Other current liabilities 1,000
Inventories 6,600	Total current liabilities 4,000
Other current assets 1,200	Long term borrowings and bonds 12,000
Total current assets 11,400	Total non- current liabilities (debt) 12,000
Land 10,000	Total liabilities 16,000
Plant and machinery 12,600	Share capital (\$1 per share) 2,000
Total non-current assets 22,600	Retained earnings 16,000
Total assets	Total equity 18,000
	Total liabilities and equity <u>34,000</u>

34.000

- b) Using the information in the financial statements above, you are required to calculate and interpret the following ratios
- i. Debt-to-equity ratio [2 marks]
 - ii. Equity multiplier [2 marks]
 - iii. Interest cover ratio/times interest earned ratio [2 marks]
 - iv. Cash coverage [2 marks]
 - v. Inventory turnover [2 marks]
 - vi. Total asset turnover [2 marks]
 - vii. Profit margin [2 marks]
 - viii. Return on assets [2 marks]
 - ix. Return on equity [2 marks]
 - x. Earnings per share [2 marks]
- c) State any three problems with financial statement analysis [3 marks]

QUESTION FOUR

- a) Explain the concept of time value of money [2 marks]
- b) What is an annuity? [2 marks]
- c) What is a par value of a bond? [2 marks]
- d) What is the present value of 15 payments of \$100 each received annually (the first one occurring in 12 months from now), if the annual discount rate (compounded annually) is 9%? [4 marks]
- e) You own a rental building in the city and are interested in replacing the heating system. You are faced with the following alternatives:
 - i. A solar system, which will cost \$12,000 to install and \$500 at the end of every year to run, and will last forever (assume that your building will too).
 - ii. A gas-heating system, which will cost \$5,000 to install and \$1,000 at the end of every year to run, and will last 20 years.

iii. An oil-heating system, which will cost \$3,500 to install and \$1,200 at the end of every year to run, and will last 15 years.

If your opportunity cost of capital (discount rate) is 10%, which of these three options is best for you? [15 marks]

QUESTION FIVE

Faro public limited company has \$1000 in its retained earnings.

- a) *Hint* $FV = PV \times (1+r)^t$
- i. What is the future value for the \$1000, if it is invested for 3 years at a compound interest rate of 10% per annum? [2 marks]
 - ii. What was the interest on interest in year 3? [2 marks]
 - iii. What would the interest payment have been in period 3, if simple interest had been paid? [2 marks]
- b) What is \$100 payable in two years' time worth today at an interest rate of 10%? [3 marks]
- c) You've been saving up to buy Faro plc. Ltd. The total cost will be \$10 million. You currently have about \$2.3 million. (*hint: find t*)
- i. If you can earn 5% on your money, how long will you have to wait? [6 marks]
 - ii. At 16%, how long must you wait? [5 marks]
- d) You invested £10,000 five years ago and your investment is now worth £15,000. What was the annual return (interest r) earned on your investment? [5 marks]

End of paper

BUSINESS FINANCE

MATHS TABLES AND FORMULAE

Present value table

Present value of 1.00 unit of currency, that is $(1 + r)^{-n}$ where r = interest rate; n = number of periods until payment or receipt.

Periods (n)	Interest rates (r)									
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909
2	0.980	0.961	0.943	0.925	0.907	0.890	0.873	0.857	0.842	0.826
3	0.971	0.942	0.915	0.889	0.864	0.840	0.816	0.794	0.772	0.751
4	0.961	0.924	0.888	0.855	0.823	0.792	0.763	0.735	0.708	0.683
5	0.951	0.906	0.863	0.822	0.784	0.747	0.713	0.681	0.650	0.621
6	0.942	0.888	0.837	0.790	0.746	0.705	0.666	0.630	0.596	0.564
7	0.933	0.871	0.813	0.760	0.711	0.665	0.623	0.583	0.547	0.513
8	0.923	0.853	0.789	0.731	0.677	0.627	0.582	0.540	0.502	0.467
9	0.914	0.837	0.766	0.703	0.645	0.592	0.544	0.500	0.460	0.424
10	0.905	0.820	0.744	0.676	0.614	0.558	0.508	0.463	0.422	0.386
11	0.896	0.804	0.722	0.650	0.585	0.527	0.475	0.429	0.388	0.350
12	0.887	0.788	0.701	0.625	0.557	0.497	0.444	0.397	0.356	0.319
13	0.879	0.773	0.681	0.601	0.530	0.469	0.415	0.368	0.326	0.290
14	0.870	0.758	0.661	0.577	0.505	0.442	0.388	0.340	0.299	0.263
15	0.861	0.743	0.642	0.555	0.481	0.417	0.362	0.315	0.275	0.239
16	0.853	0.728	0.623	0.534	0.458	0.394	0.339	0.292	0.252	0.218
17	0.844	0.714	0.605	0.513	0.436	0.371	0.317	0.270	0.231	0.198
18	0.836	0.700	0.587	0.494	0.416	0.350	0.296	0.250	0.212	0.180
19	0.828	0.686	0.570	0.475	0.396	0.331	0.277	0.232	0.194	0.164
20	0.820	0.673	0.554	0.456	0.377	0.312	0.258	0.215	0.178	0.149

Periods (n)	Interest rates (r)									
	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	0.901	0.893	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833
2	0.812	0.797	0.783	0.769	0.756	0.743	0.731	0.718	0.706	0.694
3	0.731	0.712	0.693	0.675	0.658	0.641	0.624	0.609	0.593	0.579
4	0.659	0.636	0.613	0.592	0.572	0.552	0.534	0.516	0.499	0.482
5	0.593	0.567	0.543	0.519	0.497	0.476	0.456	0.437	0.419	0.402
6	0.535	0.507	0.480	0.456	0.432	0.410	0.390	0.370	0.352	0.335
7	0.482	0.452	0.425	0.400	0.376	0.354	0.333	0.314	0.296	0.279
8	0.434	0.404	0.376	0.351	0.327	0.305	0.285	0.266	0.249	0.233
9	0.391	0.361	0.333	0.308	0.284	0.263	0.243	0.225	0.209	0.194
10	0.352	0.322	0.295	0.270	0.247	0.227	0.208	0.191	0.176	0.162
11	0.317	0.287	0.261	0.237	0.215	0.195	0.178	0.162	0.148	0.135
12	0.286	0.257	0.231	0.208	0.187	0.168	0.152	0.137	0.124	0.112
13	0.258	0.229	0.204	0.182	0.163	0.145	0.130	0.116	0.104	0.093
14	0.232	0.205	0.181	0.160	0.141	0.125	0.111	0.099	0.088	0.078
15	0.209	0.183	0.160	0.140	0.123	0.108	0.095	0.084	0.079	0.065
16	0.188	0.163	0.141	0.123	0.107	0.093	0.081	0.071	0.062	0.054
17	0.170	0.146	0.125	0.108	0.093	0.080	0.069	0.060	0.052	0.045
18	0.153	0.130	0.111	0.095	0.081	0.069	0.059	0.051	0.044	0.038
19	0.138	0.116	0.098	0.083	0.070	0.060	0.051	0.043	0.037	0.031
20	0.124	0.104	0.087	0.073	0.061	0.051	0.043	0.037	0.031	0.026

Cumulative present value of 1.00 unit of currency per annum

Receivable or Payable at the end of each year for n years $\left[\frac{1-(1+r)^{-n}}{r} \right]$

Periods (n)	Interest rates (r)									
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909
2	1.970	1.942	1.913	1.886	1.859	1.833	1.808	1.783	1.759	1.736
3	2.941	2.884	2.829	2.775	2.723	2.673	2.624	2.577	2.531	2.487
4	3.902	3.808	3.717	3.630	3.546	3.465	3.387	3.312	3.240	3.170
5	4.853	4.713	4.580	4.452	4.329	4.212	4.100	3.993	3.890	3.791
6	5.795	5.601	5.417	5.242	5.076	4.917	4.767	4.623	4.486	4.355
7	6.728	6.472	6.230	6.002	5.786	5.582	5.389	5.206	5.033	4.868
8	7.652	7.325	7.020	6.733	6.463	6.210	5.971	5.747	5.535	5.335
9	8.566	8.162	7.786	7.435	7.108	6.802	6.515	6.247	5.995	5.759
10	9.471	8.983	8.530	8.111	7.722	7.360	7.024	6.710	6.418	6.145
11	10.368	9.787	9.253	8.760	8.306	7.887	7.499	7.139	6.805	6.495
12	11.255	10.575	9.954	9.385	8.863	8.384	7.943	7.536	7.161	6.814
13	12.134	11.348	10.635	9.986	9.394	8.853	8.358	7.904	7.487	7.103
14	13.004	12.106	11.296	10.563	9.899	9.295	8.745	8.244	7.786	7.367
15	13.865	12.849	11.938	11.118	10.380	9.712	9.108	8.559	8.061	7.606
16	14.718	13.578	12.561	11.652	10.838	10.106	9.447	8.851	8.313	7.824
17	15.562	14.292	13.166	12.166	11.274	10.477	9.763	9.122	8.544	8.022
18	16.398	14.992	13.754	12.659	11.690	10.828	10.059	9.372	8.756	8.201
19	17.226	15.679	14.324	13.134	12.085	11.158	10.336	9.604	8.950	8.365
20	18.046	16.351	14.878	13.590	12.462	11.470	10.594	9.818	9.129	8.514

Periods (n)	Interest rates (r)									
	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	0.901	0.893	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833
2	1.713	1.690	1.668	1.647	1.626	1.605	1.585	1.566	1.547	1.528
3	2.444	2.402	2.361	2.322	2.283	2.246	2.210	2.174	2.140	2.106
4	3.102	3.037	2.974	2.914	2.855	2.798	2.743	2.690	2.639	2.589
5	3.696	3.605	3.517	3.433	3.352	3.274	3.199	3.127	3.058	2.991
6	4.231	4.111	3.998	3.889	3.784	3.685	3.589	3.498	3.410	3.326
7	4.712	4.564	4.423	4.288	4.160	4.039	3.922	3.812	3.706	3.605
8	5.146	4.968	4.799	4.639	4.487	4.344	4.207	4.078	3.954	3.837
9	5.537	5.328	5.132	4.946	4.772	4.607	4.451	4.303	4.163	4.031
10	5.889	5.650	5.426	5.216	5.019	4.833	4.659	4.494	4.339	4.192
11	6.207	5.938	5.687	5.453	5.234	5.029	4.836	4.656	4.486	4.327
12	6.492	6.194	5.918	5.660	5.421	5.197	4.988	4.793	4.611	4.439
13	6.750	6.424	6.122	5.842	5.583	5.342	5.118	4.910	4.715	4.533
14	6.982	6.628	6.302	6.002	5.724	5.468	5.229	5.008	4.802	4.611
15	7.191	6.811	6.462	6.142	5.847	5.575	5.324	5.092	4.876	4.675
16	7.379	6.974	6.604	6.265	5.954	5.668	5.405	5.162	4.938	4.730
17	7.549	7.120	6.729	6.373	6.047	5.749	5.475	5.222	4.990	4.775
18	7.702	7.250	6.840	6.467	6.128	5.818	5.534	5.273	5.033	4.812
19	7.839	7.366	6.938	6.550	6.198	5.877	5.584	5.316	5.070	4.843
20	7.963	7.469	7.025	6.623	6.259	5.929	5.628	5.353	5.101	4.870

FORMULAE

Valuation models

- (i) Irredeemable preference shares, paying a constant annual dividend, d , in perpetuity, where P_0 is the ex-div value:

$$P_0 = \frac{d}{k_{\text{pref}}}$$

- (ii) Ordinary (equity) shares, paying a constant annual dividend, d , in perpetuity, where P_0 is the ex-div value:

$$P_0 = \frac{d}{k_e}$$

- (iii) Ordinary (equity) shares, paying an annual dividend, d , growing in perpetuity at a constant rate, g , where P_0 is the ex-div value:

$$P_0 = \frac{d_1}{k_e - g} \quad \text{or} \quad P_0 = \frac{d_0[1 + g]}{k_e - g}$$

- (iv) Irredeemable bonds, paying annual after-tax interest, $i[1 - t]$, in perpetuity, where P_0 is the ex-interest value:

$$P_0 = \frac{i[1 - t]}{k_{\text{dnet}}}$$

or, without tax:

$$P_0 = \frac{i}{k_d}$$

- (v) Total value of the geared entity, V_g (based on MM):

$$V_g = V_u + TB$$

- (vi) Future value of S , of a sum X , invested for n periods, compounded at $r\%$ interest:

$$S = X[1 + r]^n$$

- (vii) Present value of 1.00 payable or receivable in n years, discounted at $r\%$ per annum:

$$PV = \frac{1}{[1 + r]^n}$$

- (viii) Present value of an annuity of 1.00 per annum, receivable or payable for n years, commencing in one year, discounted at $r\%$ per annum:

$$PV = \frac{1}{r} \left[1 - \frac{1}{[1 + r]^n} \right]$$

- (ix) Present value of 1.00 per annum, payable or receivable in perpetuity, commencing in one year, discounted at $r\%$ per annum:

$$PV = \frac{1}{r}$$

- (x) Present value of 1.00 per annum, receivable or payable, commencing in one year, growing in perpetuity at a constant rate of $g\%$ per annum, discounted at $r\%$ per annum:

$$PV = \frac{1}{r - g}$$

Cost of capital

- (i) Cost of irredeemable preference shares, paying an annual dividend, d , in perpetuity, and having a current ex-div price P_0 :

$$k_{\text{pref}} = \frac{d}{P_0}$$

- (ii) Cost of irredeemable bonds, paying annual net interest, $i[1-t]$, and having a current ex-interest price P_0 :

$$k_{d \text{ net}} = \frac{i[1-t]}{P_0}$$

- (iii) Cost of ordinary (equity) shares, paying an annual dividend, d , in perpetuity, and having a current ex-div price P_0 :

$$k_e = \frac{d}{P_0}$$

- (iv) Cost of ordinary (equity) shares, having a current ex-div price, P_0 , having just paid a dividend, d_0 , with the dividend growing in perpetuity by a constant $g\%$ per annum:

$$k_e = \frac{d_1}{P_0} + g \quad \text{or} \quad k_e = \frac{d_0[1+g]}{P_0} + g$$

- (v) Cost of ordinary (equity) shares, using the CAPM:

$$k_e = R_f + [R_m - R_f]\beta$$

- (vi) Cost of ordinary (equity) share capital in a geared entity:

$$k_{eg} = k_{eu} + [k_{eu} - k_d] \frac{V_D [1-t]}{V_E}$$

- (vii) Weighted average cost of capital, k_0 or WACC

$$WACC = k_e \left[\frac{V_E}{V_E + V_D} \right] + k_d [1-t] \left[\frac{V_D}{V_E + V_D} \right]$$

- (viii) Adjusted cost of capital (MM formula):

$$K_{adj} = k_{eu} [1-tL] \quad \text{or} \quad r^* = r[1-T^*L]$$

- (ix) Ungear β :

$$\beta_u = \beta_g \left[\frac{V_E}{V_E + V_D [1-t]} \right] + \beta_d \left[\frac{V_D [1-t]}{V_E + V_D [1-t]} \right]$$

- (x) Regear β :

$$\beta_g = \beta_u + [\beta_u - \beta_d] \frac{V_D [1-t]}{V_E}$$

- (xi) Adjusted discount rate to use in international capital budgeting (International Fisher effect)

$$\frac{1 + \text{annual discount rate B\$}}{1 + \text{annual discount rate A\$}} = \frac{\text{Future spot rate A\$/B\$ in 12 months' time}}{\text{Spot rate A\$/B\$}}$$

where A\$/B\$ is the number of B\$ to each A\$

Other formulae

(i) Expectations theory:

$$\text{Future spot rate A\$/B\$} = \text{Spot rate A\$/B\$} \times \frac{1 + \text{nominal country B interest rate}}{1 + \text{nominal country A interest rate}}$$

where:

A\$/B\$ is the number of B\$ to each A\$, and

A\$ is the currency of country A and B\$ is the currency of country B

(ii) Purchasing power parity (law of one price):

$$\text{Future spot rate A\$/B\$} = \text{Spot rate A\$/B\$} \times \frac{1 + \text{country B inflation rate}}{1 + \text{country A inflation rate}}$$

(iii) Link between nominal (money) and real interest rates:

$$[1 + \text{nominal (money) rate}] = [1 + \text{real interest rate}][1 + \text{inflation rate}]$$

(iv) Equivalent annual cost:

$$\text{Equivalent annual cost} = \frac{\text{PV of costs over } n \text{ years}}{n \text{ year annuity factor}}$$

(v) Theoretical ex-rights price:

$$\text{TERP} = \frac{1}{N + 1} [(N \times \text{cum rights price}) + \text{issue price}]$$

(vi) Value of a right:

$$\frac{\text{Theoretical ex rights price} - \text{issue price}}{N}$$

where N = number of rights required to buy one share.