FP

Chartered Accountant
SINGAPORE

Singapore CA Qualification (Foundation) Examination

19 June 2023

Financial Management

INSTRUCTIONS TO CANDIDATES:

1. The time allowed for this examination paper is **3 hours 15 minutes**.

2. This examination paper has **FOUR (4)** questions and comprises **SEVENTEEN (17)** pages (including this instruction sheet, Appendix A and Appendix B). Each question may have **MULTIPLE** parts and **ALL** questions are examinable.

3. This is a restricted open book examination. You are allowed to have only the following materials with you at your exam location:

    •   One A4-sized double-sided cheat sheet

    •   One A4-sized double-sided blank scratch paper

4. During the examination, you are allowed to use your laptop and any calculators that comply with the ACRA's regulations. Please note that watches, mobile phones, tablets, and all other electronic devices **MUST NOT** be used during the examination.

5. During the examination, videos of you and your computer screen will be recorded for the purpose of ensuring examination integrity and you have consented to these recordings.

6. This examination paper and all video recordings of this exam are the property of the Accounting and Corporate Regulatory Authority.

MODULE-SPECIFIC INSTRUCTIONS:

7. Assume that all dollar amounts are in Singapore dollar (S$) unless otherwise stated.

IMPORTANT NOTICE:

If you are not feeling well, please do not press "Start Assessment". If you have started and leave during the exam, you would be deemed to have attempted the paper.

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**e-Exam
Question
Number**

1

VERY IMPORTANT NOTICE

1. Your question paper is attached under the **"Resource"** tab found at the bottom right of **EACH** question.

Other important information:

2. You will **only be allowed** to access the Excel function from your computer.

3. You are **NOT ALLOWED** to access any websites or reference materials (except for your A4 sized double sided cheat sheet) during the exam.

4. You are **NOT ALLOWED** to print the question paper.

5. **Please take note that your screen will be monitored throughout the examination**. **If you are found to have accessed unauthorised materials or websites, or if you cheat or attempt to cheat, you will be liable to severe disciplinary action.**

   Should you encounter any issues during the exam, please call the following number:

   +65 6100 0518

6. **You do not need to fill in an answer for this question.**

Question 1 – (a) and (b)

It is currently 1 January 20x3.

Green e-Machines Ltd (GEL) is a listed company that manufactures high-efficiency digital electric motors for use in electric scooters in its home country.

It is looking to expand into motors for electric bikes which will require investment in new manufacturing equipment as the motors are markedly different. The aim is to sell the motors to large global bike manufacturers.

In order to appraise the project, it needs to estimate its cost of capital. The following information is relevant:

Statement of financial position extract as at 31 December 20x2:

	$'000
Equity finance ($5 ordinary shares)	50,000
Retained earnings	150,152
Total equity	200,152
7% convertible debentures	30,000
Total capital employed	**230,152**

Income statement extract for the year ended 31 December 20x2:

	$'000
Revenue	187,645
Profit before interest and tax	26,096
Interest	(2,100)
Profit before tax	24,096
Tax at 17%	(4,096)
Profit after tax	20,000
Dividends	(4,000)
Retained earnings	16,000

Question 1 – (Continued)

The 7% convertible debentures are currently priced at $97 per $100 nominal ex-interest. They are redeemable at par on 31 December 20x7 or convertible into 20 ordinary shares at that point at the investor's option. The current share price is $4.15 a share cum-dividend, predicted to grow at the same rate as the dividend growth rate for the foreseeable future.

e-Exam Question Number	Question 1 required:
2	**(a)** Calculate the:
	(i) Cost and market value of equity capital
	(8 marks)
	(ii) Cost and market value of debt
	(9 marks)
	(iii) Weighted Average Cost of Capital (WACC)
	(2 marks)
3	**(b)** Explain THREE assumptions that need to be made when using the <u>current</u> WACC to appraise a new project.
	(6 marks)
	(Total: 25 marks)

Question 2 – (a), (b), (c) and (d)

Salt to Fresh (STF) manufactures membranes for use in desalination equipment. Its home country is Abewan, with the A$ as its home currency. The Finance Director is exploring opening a new factory overseas in a lower-cost location. A site has been found in a developing country, Zinland (with the Z$ as its home currency), with financial assistance being offered by the Zinland government to encourage inwards investment. There will be no tax for the 4-year life of the project, but no remittance of funds back to STF is allowed until the end of year 3 at the earliest. In a bilateral agreement between the Zinland and Abewan governments, no taxation will be payable on Zinland earnings in Abewan either.

The current exchange rate is Z$2 : A$1. Inflation in Abewan is likely to run at 2% per annum for the foreseeable future, whereas inflation in Zinland is likely to run at 10% per annum for the foreseeable future.

Initial investment will be Z$22 million. The scrap value of this investment is guaranteed by the Zinland government and to be Z$10 million in money terms at the end of the project. Sales will be around 20,000 sheets per year. Sales prices are currently Z$1,500 per sheet, with a contribution margin of 1/3 of revenue. Fixed costs are likely to be Z$5 million per year at current prices. Sales prices and variable costs will increase at the rate of inflation in Zinland, whereas fixed costs will only increase by 6%.

The Abewan cost of capital for the company is 10% per annum and is considered suitable for use in this appraisal.

Assume investment will happen immediately and the plant will be operational straight away. Also, assume sales and operating costs occur at the end of the year to which they relate, and that cash on deposit in Abewan earns no interest.

e-Exam Question Number		Question 2 required:
4	**(a)**	Estimate the exchange rates for each of the 4 years of the project using purchasing power parity. Present your answer to 4 decimal places. **(2 marks)**
5	**(b)**	Calculate the amount and timing of nominal (or money) cashflows in Z$. **(9 marks)**
6	**(c)**	Calculate the Net Present Value in A$ of the project assuming the current policy on remittance restrictions continues. **(7 marks)**
7	**(d)**	Calculate and interpret the impact on Net Present Value in A$ if the policy on remittance restrictions is lifted from day 1 of the project. **(7 marks)** **(Total: 25 marks)**

Question 3 – (a), (b), (c) and (d)

Steamy Solutions Ltd (SSL) is a listed manufacturer of high-efficiency domestic water heaters. As a listed company it has many smaller shareholders, but 35% of the shares are held by a pension fund. The company has increased its dividend by 4% a year for many years, and the pension fund uses these dividends to help pay pensions.

Lim Tan, the Finance Director, is reviewing the latest cashflow forecast and sees SSL needs to raise finance – $30 million. He is reluctant to raise the funds externally, so he is considering ways to raise it internally.

The 2 main alternatives being considered are:

Reduce the annual dividend
The dividend this year is proposed to be $65 million. This could be reduced to $35 million.

Offer an early settlement discount to customers
Standard credit terms are currently 60 days, and currently, all credit customers use the full period of credit. Lim is considering offering a 2% discount for payment in 30 days. He expects 75% of credit customers to take advantage of this.

70% of sales are on credit, the remainder being for cash. Lim expects a 10% increase in revenues overall as a result of offering the discount. SSL makes a contribution margin of 50%.

Sales revenue is currently $730 million. Working capital is financed by an overdraft costing 10% per year.

Assume 365 days a year.

e-Exam Question Number	Question 3 required:
8	**(a)** Discuss, considering both Modigliani & Miller and the traditional views of dividend policy, whether the proposal to reduce the dividend in SSL will affect the value of the business. **(4 marks)**
9	**(b)** Calculate the reduction in the receivables balance and the annual net cost or benefit of offering the early settlement discount. **(10 marks)**
10	**(c)** Recommend, with justification, whether they should reduce the dividend or offer an early settlement discount to raise the finance needed. **(2 marks)**

Lim is also keen to ensure operations are as efficient as they can be. He has been concerned for some time that the cost of running the Human Resources Department is high. He decided to undertake a Value for Money audit of the department, considering the **'3e's' of economy, efficiency, and effectiveness**.

e-Exam Question Number	Question 3 required:
11	**(d)** Explain the '3e's' of the Value for Money framework and give ONE example for each 'e' in this context. **(9 marks)** **(Total: 25 marks)**

Question 4 – (a), (b), (c), and (d)

Management Gymnastics Advisors (MGA) is a management consulting firm that specialises in advising clients on the implementation of agile business practices.

It is seeking to expand its portfolio of clients and service offerings and has identified a suitable target – Fail Fast To Win Consultants (FFTW). FFTW is a small owner-managed business that was set up by James Calfwitz, who uses his extensive network and strong interpersonal skills to win and retain clients. James has a team of 5 consultants working for him. James is looking to retire so is amendable to selling the business.

MGA has prepared valuations as follows:

	$
Assets based	5.2 million
Price-Earnings based (Based on a comparable listed company P/E ratio and the latest set of FFTW earnings)	17 million
Discounted Cashflow based (Based on forecasts prepared by James Calfwitz)	20.5 million

MGA would also like to consider a Dividend Valuation Model-based valuation. To assist in this the following information is relevant:

Number of shares	100,000
Dividend just paid per share	$10
Dividend paid 5 years ago per share (when 50,000 were in issue*)	$15.67
Estimated cost of equity	12%

*A bonus issue of 1 new share for every 1 share in issue (issued for free) was made 2 years ago. Dividends have been growing reasonably consistently over the period, apart from the effect of the bonus issue.

e-Exam Question Number	Question 4 required:
12	**(a)** Calculate the value of FFTW using the Dividend Valuation Model. **(5 marks)**
13	**(b)** Discuss the suitability of the different methods of valuation in this case. **(10 marks)**
14	**(c)** Recommend and justify a range for use in negotiations with the seller. **(2 marks)**
15	**(d)** Evaluate FOUR non-financial matters that should be considered in the decision of whether or not to purchase FFTW. **(8 marks)** **(Total: 25 marks)**

END OF PAPER

Appendix A – Formulae and Present Value Tables

Financial ratios

Current ratio	= Current assets / Current liabilities
Net working capital	= Current assets - Current liabilities
Return on total assets	= Net income / Average total assets
Return on equity	= Net income / Average shareholders' equity
Receivables days	= (Accounts receivable balance / annual credit sales) x 365
Receivables turnover	= (Annual credit sales/ Accounts receivable balance) to give 'times a year'
Payables days	= (Accounts payable balance / annual purchases or cost of sales) x 365
Payables turnover	= (Annual purchases or cost of sales/ Accounts payable balance) to give 'times a year'
Inventory days	= (Inventory balance / cost of sales) x 365
Inventory turnover	= (Cost of sales / inventory balance) to give 'times a year'

Dividend growth model

$K_e = [D_0(1+g) / P_0] + g$

Where:

K_e = the cost of equity

D_0 = the current dividend per share

g = future anticipated annual growth rate in dividends per share

P_0 = the current ex-div share price

g can be estimated as

$(D_r / D_e)^{(1/n)} - 1$

Where:

D_r = the latest dividend in a historical pattern

D_e = the earliest dividend in a historical pattern

n = the number of years between the earliest and the latest dividend in a sequence of historical dividends.

Or $g = b \times r$

Where:

b = the proportion of earnings held back

r = the return on reinvested earnings

Capital Asset Pricing Model ('CAPM'):

$$K_e = R_f + \beta(R_m - R_f)$$

K_e = the cost of equity

R_f = The risk-free rate of return

R_m = the return on a market portfolio

β = the systematic risk factor

Valuations

Weighted Average Cost of Capital (WACC)

$$WACC\% = [(V_e/(V_e+V_d) \times K_e] + [(V_d/(V_e+V_d) \times K_d]$$

Where:

V_e =   The market value of all ordinary shares

V_d =   The market value of debt

K_e =   Cost of Equity

K_d =   After-tax Cost of Debt

Constant Growth Dividend discount model

$$P_0 = D_0 (1+g) / (K_e - g)$$

Where:

K_e = the cost of equity

D_0 = the current dividend per share

g = future anticipated annual growth rate in dividends per share

P_0 = the current ex-div share value of one share

Price-Earnings (P/E) model (EPS)

$P_0 = P/E \times EPS$

Where:

P_0 = value of 1 ordinary share

P/E = an applicable price/earnings ratio (calculated as price per share / earnings per share)

EPS = earnings per share (being earnings available for distribution to ordinary shareholders / number of ordinary shares)

Present value of an annuity

$$\frac{1-(1+r)^{-n}}{r}$$

Where:

r = discount rate

n = number of periods

Present value

$PV = FV_n / (1 + i)^n$

Where:

PV = Present Value

FV_n = Future value at end of period n

i = Interest rate per period

n = Number of periods

Internal Rate of Return

IRR is approximately $\quad A + \dfrac{(B-A)N_A}{(N_A - N_B)}$

Where:

A   =   The lower discount rate chosen

B   =   The higher discount rate chosen

N_A =   The net present value calculated at A%

N_B =   The net present value calculated at B%

The nominal (or money) cost of capital

$(1+m) = (1=i)(1+r)$

m = the money rate

i = inflation rate

r = the real rate

The Baumol model of cash management:

$$Q = \sqrt{\frac{2C_O D}{C_H}}$$

Where:

Q = The value of securities to sell each time

C_o = the fixed costs associated with selling a parcel of securities

D = The annual demand for cash

C_H = The annual interest rate, as a decimal. Associated with holding cash as opposed to investments

Present value interest factor of an (ordinary) annuity of $1 per period at i% for n periods, PVIFA(i,n).									
Period	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	15.678	14.324	13.134	12.085	11.158	10.336	9.604	8.950	8.365
20	18.046	16.351	14.877	13.590	12.462	11.470	10.594	9.818	9.129	8.514

Period	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

Present value interest factor of $1 per period at i% for n periods, PVIF(i,n).

Period	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

Period	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	0.074	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

Appendix B – Common verbs used by the Examiners

Verb	Description
Calculate / Compute	Do the number crunching and derive the correct answer. Make sure that you write down your workings and crosscheck your numbers.
Discuss	**Discuss** requires you to provide the 'for' and 'against' arguments, you cannot have a discussion without opposing views otherwise it would be just a conversation. If **discuss** is placed near the front of the instruction, then it requires you to provide an answer that is similar to **explain**, but addresses both the for and against arguments.
Estimate	Suggest an approximate value (or range of values) based on the available information. Remember, although **estimating** involves uncertainty, some answers will be <u>more right</u> (or appropriate) than others.
Evaluate	Pass judgment on or provide your opinion based on the facts at hand. When making an **evaluation**, there are often predetermined criteria that you will use to base your opinion on. The key here is to give your opinion or make a judgment of the facts, but providing just a **description** of the facts is insufficient. Professional judgment and scepticism (a questioning mind) are called for when making an **evaluation**.
Explain	**Explain** requires you to write at least several sentences conveying how you have **analysed** the information in a way that a layperson can easily understand the concept or grasp the technical issue at hand.
Interpret	Look at the whole as well as the individual parts and decide what the data (or diagram) is telling you. Remember, although **interpret** may involve some subjective assessment, some answers will be <u>more right</u> (or appropriate) than others.
Justify	Whenever you see the word **justify** you <u>must</u> provide reasons for your answer, in other words, provide support for your argument or conclusion. If you fail to **justify** your answer, you will lose valuable marks. **Justify** is similar to **defend**.
Recommend	Make a statement about the most appropriate course of action. If there is more than one possible course of action, **state** which action you would choose and why (**justify** your choice). Your professional judgment and your ability to **interpret** the wider situation are critical to scoring well in these types of questions. Don't forget to think about the future and the past, not just the present when making a **recommendation**.