FP

Chartered
Accountant
SINGAPORE

Singapore CA Qualification (Foundation) Examination

6 June 2022

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 **NINETEEN (19)** 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 SAC'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 Singapore Accountancy Commission.

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.

ISCA INSTITUTE OF SINGAPORE CHARTERED ACCOUNTANTS

SINGAPORE ACCOUNTANCY COMMISSION

e-Exam Question Number	
e-Exam Question Number	**VERY IMPORTANT NOTICE**
1	1. Your question paper is attached under the **"Resource"** tab found at the bottom right of **EACH** question.

****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 0516

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

Question 1 – (a), (b) and (c)

Today is 1 January 20x5.

Topnote192 (TN) is a listed Singapore business that specialises in the streaming of high-definition audio for audiophiles worldwide. They have a loyal fanbase, partly due to the superior quality of their audio capture process that gives better results than rival platforms.

It has an equity beta factor of 1.5. It has 10m shares in issue each with a nominal value of $0.10, and a cum-dividend market price of $2.60. A dividend of $0.60 per share is just about to be paid. In additional to share capital, there is $15m of retained profits on its statement of financial position.

The company also has the following other sources of finance:

- a $10m 6% bank loan that was taken out 3 years ago. It is repayable in full on 1 January 20x9.
- 5m 8%, $0.50 preference shares with a current ex-div market price of $1 per share.

The risk-free rate of return is 2%, and the market rate of return is 10%. Corporate tax is payable at 17%.

e-Exam Question Number	Question 1 required:
2	**(a)** Calculate the current Weighted Average Cost of Capital for TN. **(13 marks)**

The Finance Director is concerned that dramatic changes to taxes may affect the company. He is interested in understanding potential impact on the Weighted Average Cost of Capital of an increase in corporate tax rates to, say 30%.

e-Exam Question Number	Question 1 required:
3	**(b)(i)** Calculate the impact on the Weighted Average Cost of Capital if corporate tax was to increase to 30%. **(3 marks)** **(b)(ii)** Discuss whether the increase in taxes would increase or decrease the value of TN. **(3 marks)**

Alternative sources of finance are being considered to invest $5m in a new app platform. The industry average gearing level is 30% (measured as the market value of debt / (market value of debt + market value of equity)). The two options being considered are retained earnings (by withholding a dividend) or new debt finance.

e-Exam Question Number	Question 1 required:
4	**(c)** Assuming the traditional view of capital structure, discuss the likely impact on the Weighted Average Cost of Capital, and the value of the company, of each source of finance being considered. **(6 marks)** **(Total: 25 marks)**

Question 2 – (a) and (b)

Today is 1 January 20x3.

Velvet Quiet Ltd (VQL) plans to manufacture smart speakers that actively cancel ambient noise by producing negatively phased sound waves that cancel out white noise, traffic noise, aircraft noise, electrical humming and similar background disturbances. The customer places one smart speaker in each room in their home to achieve 'background silence' rather than background noise.

VQL has chosen a potential manufacturer for the speakers based in the Philippines and is appraising the product before launch.

Future sales are uncertain – the Sales Director's best estimate is 20,000 units in the first year. The annual growth rate is also uncertain. The Sales Director estimates that there is a 75% chance growth could be 60% per year, and a 25% chance it could be 20% per year.

The sales price per speaker is estimated to be S$200 in nominal terms in each of the initial years, and then reducing to S$150 in nominal terms in the final year – 20x6. Manufacturing, transportation and administration costs per speaker are anticipated to be PHP4,625 (PHP = Philippine Peso) in the first year. This is expected to increase in line with Philippine inflation of 5% per year after the initial year. Inflation in Singapore is predicted to be around 0.5% per year over the period of the project.

The initial investment is estimated to be S$6m to purchase specific machinery for the manufacturer. Apportioned head office costs are expected to amount to S$5 per speaker and represent an allocation of existing head office costs in Singapore.

Today, the exchange rate is 37 Philippine Peso to 1 Singapore dollar. The nominal cost of capital is 10%.

Ignore taxation.

e-Exam Question Number	Question 2 required:
5	**(a)** Using Purchasing Power Parity, estimate the PHP:SGD exchange rate at 31 December for 20x3 to 20x6 inclusive. Present your answer to 2 decimal places. **(4 marks)**
6	**(b)** Calculate: **(i)** The expected annual operating cashflows expressed in Singapore dollars. **(16 marks)** **(ii)** The Net Present Value of the project in Singapore dollars. Recommend if the project should be undertaken based on the result of your calculation. **(5 marks)** **(Total: 25 marks)**

Question 3 – (a), (b), (c) and (d)

The Finance Director of Living Up Fashions (LUF), a fashion clothing manufacturer, is reviewing the working capital management policies of the business.

Information to the latest year:

Sales	$50m per year
Receivables days	91.25 days
Payables days	9.125 days
Inventory days	182.5 days
Gross margin	40%

The 'days' calculations are averages for the year. The net investment in working capital is financed by a 15% 10-year loan of $35m. The amount borrowed caters for the absolute maximum working capital requirement, with any spare cash at any one time being invested in short-term deposits earning interest at a rate of 2% per year.

The overdraft, with an associated rate of 5% per year, is rarely if ever used. It would be sufficient to fund working capital if required.

The Board are reluctant to change the working capital management policies as they believe it is good for the business.

The Finance Director has asked you to assist her to prepare some working papers for the Board to demonstrate how improvements may be made.

Assume 365 days a year.

e-Exam Question Number		Question 3 required:
7	**(a)**	Calculate the amount of investment currently made in working capital. **(5 marks)**
8	**(b)**	Calculate the net annual cost of financing this using the current financing arrangements. **(5 marks)**

The Finance Director is considering the following actions:

- Reduce receivables days by 50%
- Increase payables days by 400%
- Reduce inventory days by 90%
- Finance the entire requirement using the overdraft

e-Exam Question Number	Question 3 required:
9	**(c)** Calculate:
	(i) The impact on the investment in working capital of implementing the above strategy. **(7 marks)**
	(ii) The impact of the above policies on the finance charge for the year. You should assume working capital is financed by the overdraft facility. **(2 marks)**
10	**(d)** For EACH of the inventory, receivables, and payables, discuss TWO possible business consequences of the proposed changes in policy. **(6 marks)** **(Total: 25 marks)**

Question 4 – (a), (b) and (c)

ViroBio (VB) is a unique start-up business whose aim is to develop a cure for the common cold. It was founded by 2 university professors who have made promising discoveries and filed patents. They are seeking private funding to develop their findings into a commercial solution. They are seeking funding for the initial 10-year development period, after which they anticipate they will have a marketable product.

The 2 Professors estimate costs of approximately $10m a year for the initial 10-year development period. They are looking to sell a stake in the company now to provide the funding they need to bring their product to market and make a return. 25% of the funding will be invested in medical research equipment and the remainder will be ongoing research expenses for the 10-year research period.

You work for a private equity investment fund who is considering the acquisition.

e-Exam Question Number	Question 4 required:
11	**(a)** Discuss SIX problems associated particularly with valuing a start-up business such as VB. **(12 marks)**

Assume:

- The Professors' estimates of cost are accurate for the first 10 years.
- That in year 11 revenues will be $40m, growing at 18% indefinitely.
- Costs will be $40m in year 11, growing at 10% per annum indefinitely.
- The cost of capital is 20% per year.

e-Exam Question Number	Question 4 required:		
12	**(b)**	Calculate the current value of the business's equity.	**(8 marks)**

The private equity fund is considering funding the acquisition by reducing dividends paid as opposed to increasing already significant borrowings.

e-Exam Question Number	Question 4 required:		
13	**(c)**	Consider TWO potential impacts of reducing dividends on the fund's financing and TWO potential impacts on shareholder relationships and **recommend**, with justification, whether this should be done.	**(5 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:

Ve   =   The market value of all ordinary shares

Vd   =   The market value of debt

Ke   =   Cost of Equity

Kd   =   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 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 more right (or appropriate) than others.
Justify	Whenever you see the word **justify** you must 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**.
Use / Using	This instruction tells you the type of model that you must **use** when formulating your answer. For instance, "**Using** the Discounted Cash Flow approach, …" tells you what valuation approach to use. Another common phrase is "**Using** the facts of the case, ...", which tells you that you must relate your answer to the specific facts given in the question scenario. Generic answers will not pass.