Exam ILALFMC

Life Financial Management - Canada
MORNING SESSION

Date: Wednesday, April 29, 2020
Time: 8:30 a.m. – 11:45 a.m.

INSTRUCTIONS TO CANDIDATES

General Instructions

1. This examination has a total of 100 points. It consists of a morning session (worth 60 points) and an afternoon session (worth 40 points).

   a) The morning session consists of 7 questions numbered 1 through 7.

   b) The afternoon session consists of 4 questions numbered 8 through 11.

   The points for each question are indicated at the beginning of the question.

2. Failure to stop writing after time is called will result in the disqualification of your answers or further disciplinary action.

3. While every attempt is made to avoid defective questions, sometimes they do occur. If you believe a question is defective, the supervisor or proctor cannot give you any guidance beyond the instructions on the exam booklet.

Written-Answer Instructions

1. Write your candidate number at the top of each sheet. Your name must not appear.

2. Write on only one side of a sheet. Start each question on a fresh sheet. On each sheet, write the number of the question that you are answering. Do not answer more than one question on a single sheet.

3. The answer should be confined to the question as set.

4. When you are asked to calculate, show all your work including any applicable formulas.

5. When you finish, insert all your written-answer sheets into the Essay Answer Envelope. Be sure to hand in all your answer sheets because they cannot be accepted later. Seal the envelope and write your candidate number in the space provided on the outside of the envelope. Check the appropriate box to indicate morning or afternoon session for Exam ILALFMC.

6. Be sure your essay answer envelope is signed because if it is not, your examination will not be graded.

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****BEGINNING OF EXAMINATION****
Morning Session

1. (*9 points*) ABC Insurance Group is a US-based corporation that sells only nonparticipating whole life and accident policies. ABC reports GAAP financials based on FAS 60. ABC is being acquired by an insurance group based in the European Union and will report financials on both an IFRS and US GAAP basis.

(a) (*2 points*) Compare the methodology and assumptions used to calculate ABC's liabilities under IFRS 17 and ASU 2018-12.

You are given:

Present value of cash flows	1,000
Risk Adjustment	250
Contractual Service Margin	100
Liability for Incurred Claims	475
Incurred But Not Reported (IBNR)	500
Other Assets	2,000
Liability for future policyholder benefits	1,280
GAAP - DAC	100

(b) (*3 points*) Calculate ABC's equity under both ASU 2018-12 and IFRS 17. Assume that the basis of Other Assets is the same under both regimes. Show all work.

(c) (*4 points*) Critique the following statements regarding the Insurance Capital Standard (ICS) guided by International Association of Insurance Supervisors (IAIS).

A. *The main objectives of the ICS are protection of shareholders and to contribute to financial growth.*

B. *The ICS reflects only insurance and investment risks to which an International Active Insurance Group (IAIG) is exposed.*

C. *The capital requirement in the ICS is intended to represent a three-year 95 percentile Conditional Tail Expectation (CTE) level of risk.*

D. *Currently, the only approach being considered to estimate margin over current estimates (MOCE) is the Cost of Capital MOCE approach, which is based on an assumed cost of holding ICS required capital.*

2. (*9 points*) DEF, a Canadian Life Insurance Company, specializes in UL products. Recently, they decided to launch their first participating product, First Par. First Par is a whole life product with a guaranteed death benefit and annual cash dividends.

(a) (*3 points*) DEF is planning the following dividend determination process for First Par:

- *First Par dividends will be updated every three years in order to smooth experience over time.*
- *A single interest rate will be used for all First Par policyholders, regardless of issue date or other policyholder characteristics.*
- *Claims experience gains and losses from all products will be considered.*

Comment on how well the above dividend determination process reflects the contribution principle.

(b) (*6 points*) You are given the following statements:

A. Initial sales projections do not justify creating a separate participating account. Hence, there is no need for DEF to create a Par Account Management Policy.

B. First Par will have several advantages over the existing UL products:

- *DEF may claim qualifying par status, reducing LICAT required capital.*
- *DEF can hold lower PfADs on First Par compared to UL products.*
- *DEF will be able to realize a profit margin at 12% regardless of experience, as the full amount of any losses can be offset by reducing dividends.*

C. DEF will create a Dividend Policy, but it will not be disclosed publicly to reduce the risk of a lawsuit.

D. The Appointed Actuary does not need to sign any additional opinions related to the dividends and the company's dividend policy, since there is no Par Account Management Policy.

Evaluate the above statements.

3. (*11 points*) You are given the following information about the currency risk exposure for a Canadian life insurance company:

Currency	Value of Assets Denominated in Foreign Currency	Par Liability	Non-Par Liability	Solvency Buffer
USD	800	450	540	40
EUR	270	105	115	10
GBP	400	170	130	12.5
CNY	850	100	700	55
CHF	80	40	60	5
GOLD	50	20	10	12
Total	2,450	885	1,555	134.5

All values in the table above have been converted to Canadian dollars.

(a) (*7 points*) Calculate the par and non-par allocations of the company's currency risk capital requirement. Show all work.

(b) (*3 points*) Describe how the following actions reduce required capital for currency risks under LICAT:

(i) Divest or reduce operations in foreign currency

(ii) Purchase Options

(iii) Purchase Forwards

(c) (*1 point*) Define three market risks in LICAT other than currency risk.

4. (*6 points*)

(a) (*2 points*) With respect to Prescribed Annuity Contracts (PACs):

(i) Identify the categories.

(ii) Briefly describe the taxation of PACs.

(b) (*2.5 points*) You are given the following information for two annuity contracts issued January 1, 2015:

	Annuitant 1	**Annuitant 2**
Accumulating Fund, previous anniversary	10,000	10,000
Accumulating Fund, current anniversary	9,800	0
Mortality Gain/Loss	200 Gain	9,600 Loss

Assume:

- The contracts are in the payout period.
- Annual annuity payment = 1,000
- The Accrual Method is used to calculate the taxable income.
- Annuitant 1 survives the year
- Annuitant 2 dies just before the end of the policy year, with no further amounts payable.

For each contract:

(i) Calculate the taxable amount of income in the current policy year and the adjusted cost basis (ACB) at the beginning of next policy year.

(ii) Describe the benefit of electing PAC treatment.

(c) (*1.5 points*) You are given the following information for two Canadian life insurance policies:

Date policy acquired	**CSV**	**Policy Loan**	**ACB**	**Tax Rate**
01-Jul-83	10,000	5,000	6,000	35%
01-Jul-82	20,000	0	12,000	40%

Calculate the tax payable on each policy for a full surrender.

5. (*7 points*)

(a) (*5 points*) Evaluate the appropriateness of the following CALM valuation expense assumptions for a life insurance block of business:

A. The best estimate annual maintenance expense assumption is 60 per policy. This is based on the most recent expense study of the company. This includes expenses incurred to sell and underwrite policies, to perform the administration of the policies, and to pay claims. It does not include any overhead expenses or expenses associated with policyholder dividends.

B. The maintenance expense inflation rate is 3% per year.

C. Commissions and premium taxes are included separately in the valuation and are not subject to inflation.

D. A margin for adverse deviation of 15% is applied to all expenses.

E. Investment expenses for the assets supporting the liability are not included in the valuation.

(b) (*2 points*) The company is implementing an initiative that is expected to reduce the annual maintenance expense by 5 per policy.

Describe four considerations in updating the valuation expense assumption.

6. (*11 points*)

(a) (*4 points*) Evaluate the following statements with respect to CALM valuation:

A. The contract liability for a particular scenario is equal to the present value of the net liability cashflows discounted using risk free rates plus an appropriate margin.

B. The contract liability for a block of business must be set to the maximum of the amount calculated under the prescribed scenarios.

C. Each assumption is expressed in terms of a best estimate plus a margin for adverse deviation.

D. The term of the liability is equal to the contractual term of the policy.

(b) (*1 point*) List four considerations for setting an appropriate valuation investment strategy assumption.

(c) (*3 points*) You are calculating CALM reserves for a life insurance portfolio that is backed solely by fixed income bonds. The company has decided to add a portfolio of diversified North American common shares to the fixed income assets. You have good historical data for these shares.

(i) (*2 points*) Describe considerations for determining the valuation assumptions used for equity returns.

(ii) (*1 point*) Describe changes to the investment strategy used in valuation due to the addition of equities.

6. **Continued**

(d) (*3 points*) You are given the following information:

	Asset A
Best estimate credit spread (balance sheet date)	130 basis points (bps)
Historical average credit spread	110 bps
Margin for credit spread	10%
Expected asset depreciation	10 bps
Margin for asset depreciation	50%
Long-term average net credit spread (30 years)	75 bps

Determine the net credit spread after margin using Approach I as described in the applicable CIA Educational Note at:

(i) Time 0

(ii) End of year 3

(iii) End of year 20

Show all work.

7. (*7 points*)

(a) (*2 points*)

(i) Outline the terms of the IFRS 17 Standard that indicate when discounting can be used in the determination of coverage units.

(ii) Explain the impact that the use of discounting coverage units would have on the pattern of income in future time periods.

(b) (*1 point*) You are given the following statement with respect to IFRS 17:

For a UL Policy where the death benefit is the Face Amount plus the Account Value, we recommend using the face amount to determine coverage units for this type of contract because the future Account Values are uncertain.

Evaluate the appropriateness of this recommendation. Justify your response.

(c) (*4 points*) You are given the following information for a UL insurance contract valued under IFRS 17:

- Contract terminates at the end of year 3.
- Death benefit is the sum of the Face Amount and the Account Value.
- Locked in discount rate at contract issue is 3%.
- Current interest rate is 4%.
- $q_x = 50/1000$ for all ages and durations.
- Contractual service margin at issue is 100.
- Coverage units are not discounted.

Beginning of Year	1	2	3
Face Amount	1000	1000	1000
Account Value	200	210	221

Calculate the contractual service margin at the end of year 2. Show all work.

****END OF EXAMINATION****
Morning Session

USE THIS PAGE FOR YOUR SCRATCH WORK

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