Exam GHCORC

Group and Health Core Exam - Canada
MORNING SESSION

Date: Wednesday, October 31, 2018
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 8 questions numbered 1 through 8.

   b) The afternoon session consists of 6 questions numbered 9 through 14.

   The points for each question are indicated at the beginning of the question. Questions 3, 4, and 10 pertain to the Case Study.

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 GHCORC.

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

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CASE STUDY INSTRUCTIONS

The case study will be used as a basis for some examination questions. Be sure to answer the question asked by referring to the case study. For example, when asked for advantages of a particular plan design to a company referenced in the case study, your response should be limited to that company. Other advantages should not be listed, as they are extraneous to the question and will result in no additional credit. Further, if they conflict with the applicable advantages, no credit will be given.

BEGINNING OF EXAMINATION
Morning Session

1. (*8 points*) John Doe became disabled at age 40 as a result of a work accident that left him unable to use his right arm. At the time of the accident, John was working in Ontario and earning a net income of $100,000 per year. His employer, Safe-T Industries, sponsors a Long Term Disability (LTD) plan, the key provisions of which are as follows:

- Premiums are 100% paid by employees
- Six month elimination period
- Benefit formula is 70% of net monthly earnings up to $3,000 plus 60% of the remainder
- Maximum monthly benefit of $8,000

Safe-T Industries also provides the following benefits to active employees:

- Life insurance coverage of one times earnings, with waiver of premium on disability
- Accidental death and dismemberment coverage of one times earnings, with waiver of premium on disability
- Critical illness coverage of $50,000 for covered conditions, including cancer
- Extended health and dental benefits

(a) (*2 points*) Describe the assessment basis for the Workers' Compensation system.

(b) (*4 points*)

(i) (*1 point*) Describe the eligibility requirements for Workers Safety Insurance Board (WSIB) benefits.

(ii) (*3 points*) Compare and contrast the benefits payable under the employer-sponsored LTD plan versus WSIB benefits. Assume John is eligible for benefits from both programs. Show your work.

1. Continued

(c) (*2 points*) Jane Smith worked with John at Safe-T Industries. Jane had a form of cancer caused by exposure to a chemical as part of her job and was receiving disability benefits from both WSIB and the Canadian Pension Plan (CPP) at the time of her death. Before her disability, Jane was earning a gross income of $110,000 per year.

Safe-T Industries' HR representative has told Jane's beneficiary that he will receive $160,000 in death benefits from all sources.

Evaluate the HR representative's statement. Justify your response.

2. (*8 points*) A Canadian company, Baltic & Co., is reviewing required capital under Life Insurance Capital Adequacy Test (LICAT) for their health insurance block of business. To illustrate morbidity risk, you reviewed two sample individuals and associated assumptions relating to incidence and termination:

Individual Critical Illness

Policy #	Status	Current Age	Gender	Benefit Coverage Period	Amount at Risk
14523	Active	51	M	3 years	$10,000

SEX	Age	Claim Incidence Rate (per 1000 lives)
M	50	2.7
M	51	2.9
M	52	3.0
M	53	3.2

Group Long Term Disability

Certificate #	Status	Current Age	Gender	Benefit Period Remaining	Benefit Amount	Mode	Cost of Living Adjustment
28967	Disabled	60	F	5 years	$7,200	Annual at beginning of year	0%

SEX	Age	Claim Incidence Rate (per 1000 lives)	Termination Rate (recovery and death combined)
F	60	4.0	0.34
F	61	4.2	0.21
F	62	4.3	0.13
F	63	4.6	0.09
F	64	4.9	0.09

(a) (*3 points*) Describe the following, as defined under LICAT:

(i) Morbidity risk

(ii) Morbidity risk required capital components, and how they are calculated

2. **Continued**

(b) (*2 points*) Compare and contrast the shock factors used for morbidity risk required capital as defined under LICAT applicable to:

- Individual critical illness
- Group long term disability

(c) (*3 points*) Calculate morbidity risk required capital for the two individuals. Assume a constant discount rate of 3% per annum and morbidity improvement of 0%. State your assumptions and show your work.

Questions 3 and 4 pertain to the Case Study.
Each question should be answered independently.

3. (*7 points*) On December 31, 2017, Another Day, Inc. introduced a new retirement allowance plan that pays 1 week of salary at retirement for each year of completed service, up to 35 years.

To be eligible, the employee must be age 55 or older on December 31, 2017.

Based on the most recent collective agreement effective from 2015 to 2020, active employees will get the following salary increases:

- 2015 to 2017: 2.5% per year
- 2018 to 2019: 3.0% per year
- 2020: 3.5%

Other assumptions include:

- All employees will retire at age 65 or immediately if older
- No termination or mortality before retirement
- The effective discount rate is 4.0% on December 31, 2017
- The employee data are effective December 31, 2017

Another Day is required to reflect the liabilities associated with the new retirement allowance plan under IAS 19.

(a) (*1 point*) Describe how the attribution period is determined for this benefit.

(b) (*1 point*) Recommend a salary scale assumption. Justify your response.

(c) (*4 points*) Calculate the Defined Benefit Obligation (DBO) for this new benefit as at December 31, 2017 and the 2018 current service cost. State your assumptions and show your work.

(d) (*1 point*) Calculate the projected DBO as at December 31, 2018. State your assumptions and show your work.

Questions 3 and 4 pertains to the Case Study. ***Each question should be answered independently.***

4. (*5 points*) Another Day, Inc. has added an office in British Columbia (BC). The details of their BC employee group in 2017 are shown below. Salaries for employees in BC range from $42,000 per year to $200,000 per year.

Family Status	Employee Count	Average Salary
Single	108	$71,000
Family	243	$84,000
Total	**351**	**$80,000**

In addition to its active benefit plan, Another Day, Inc. also pays 100% of the Medical Services Plan (MSP) premium cost for its active employees in the BC office.

You are provided with the following information:

- The premium rates for all benefits are on a rate guarantee and will remain the same in 2018, 2019 and 2020
- Salaries are assumed to increase at a rate of 5% per annum
- No new hires or terminations are expected for 2018, 2019 or 2020
- Health Spending Account usage is 100%
- The BC government announced that they will eliminate the MSP premium effective January 1, 2020
- Beginning on January 1, 2019, a new Employer Health Tax will be applied to BC payrolls based on employer payroll size. Details are provided in the table below:

Annual BC Payroll	Annual Tax	Tax as a percent of Payroll
$0 - $499,999	$0	0.00%
$500,000 - $749,999	$7,313	0.98%
$750,000 - $999,999	$14,625	1.46%
$1,000,000 - $1,249,999	$21,938	1.76%
$1,250,000 - $1,499,999	$29,950	1.95%
$1,500,000+	$29,250 plus 1.95% of payroll over $1.5 million	1.95%

For its BC employees, Another Day is planning to set the 2020 employee benefits budget equal to the actual 2018 benefit cost.

Calculate the expected budget surplus or shortfall for 2020. State your assumptions and show your work.

5. (*7 points*) Hoyt Industries (Hoyt) is located in Ontario and has 500 employees. It pays 100% of the cost for insured life and disability benefits and Administrative Services Only (ASO) health and dental benefits to its employees. Hoyt plans to open an office in Newfoundland and will extend the existing plans to employees in the new office. The ASO plan includes individual large amount pooling for healthcare claims in excess of $25,000 per person per year.

(a) (*2 points*) Projected ASO plan costs, including all taxes and fees, for the existing plan are $140 per employee per month (PEPM) and $92 PEPM for health and dental benefits, respectively.

Calculate the projected PEPM ASO plan costs for the Newfoundland office. State any assumptions and show your work.

(b) (*3 points*) While recruiting for the new office, Hoyt receives feedback from potential employees that they would prefer a higher base salary rather than a health and dental plan. Hoyt is willing to consider this suggestion as long as the cost to the company does not increase.

(i) (*2 points*) Calculate the maximum annual salary increase that Hoyt could offer to an employee in Newfoundland with a salary of $45,000, in exchange for the removal of health and dental benefits.

(ii) (*1 point*) Calculate the maximum annual salary increase that Hoyt could offer to an employee in Ontario with a salary of $60,000, in exchange for the removal of health and dental benefits.

(c) (*2 points*) Calculate the difference in value, before and after the suggested change in (b), for each employee in (i) and (ii) above assuming a marginal tax rate of 30%.

State any assumptions and show your work.

6. (*8 points*) Hudson Health (Hudson) is a health insurance company looking to transition their accounting reporting standard from IFRS 4 to IFRS 17. An actuary from Hudson is presenting the fundamentals of IFRS 17 to senior management by using a simple example of a Critical Illness (CI) insurance contract below.

- Total premiums are $500 paid at January 1, 2021
- The insured is covered for 2 years
- Lump sum benefit of $12,000 is paid if a trigger event occurs
- There is a 1% chance of the insured claiming CI in the first year, and 2% in the second year
- Commissions are 10% of premium
- Policy maintenance expense is $10 per annum paid at the beginning of the year
- Initial non-attributable overhead expense is $15
- Assume a constant discount rate of 3% per annum
- Risk adjustment for non-financial risk is set at 10% of present value of future claims

(a) (*2 points*) Describe the three liability measurement approaches under IFRS 17 for different types of insurance contracts.

(b) (*6 points*) The actuary would like to show how the entity should recognize the insurance contract at the beginning of the coverage period using the general model approach (building block approach) under IFRS 17.

(i) (*1 point*) Describe the building blocks of the general model approach under IFRS 17.

(ii) (*3 points*) Calculate each building block under the general model approach at the time of inception. State your assumptions and show your work.

(iii) (*2 points*) Construct a table showing the breakdown of IFRS 17 income from inception to the end of the insurance contract. Assume the contract service margin is amortized linearly. Show your work.

7. (*10 points*) Duffield Inc., an Alberta-based company, self-insures a closed group of employer-paid long term disability (LTD) claimants, including continuation of health and dental benefits for the duration of disability. One of its strategies for reducing the disabled life reserves (DLRs) is to offer cash payouts to certain disabled individuals.

The cash payout is calculated as 125% of (net monthly income during disability – net monthly income during retirement) multiplied by the number of months to age 65. Claimants that accept the cash payout:

- will retire immediately from Duffield;
- will begin collecting the Canadian Pension Plan (CPP) retirement benefit as soon as they become eligible; and
- will not receive any future disability or health and dental benefits from Duffield.

Duffield is considering cash payouts for the following claimants:

Claimant	Age	Gross monthly LTD benefit	Gross monthly CPP disability benefit	Gross monthly health and dental benefit	DLR	Gross monthly pension (current age)	Gross monthly CPP retirement benefit (age 65)
1	58	$5,100	$1,050	$220	$245,250	$3,000	$950
2	60	$2,400	$0	$110	$125,700	$1,700	$800
3	55	$3,000	$900	$110	$158,625	$2,650	$625

DLRs are determined at the end of the current fiscal year.

Disabled individuals have no other income. Assume all LTD claimants have an effective tax rate of 30% during disability and 25% in retirement.

(a) (*2 points*)

(i) (*1 point*) Describe the eligibility requirements to receive each of the following CPP benefits:

- Disability
- Retirement
- Death

(ii) (*1 point*) Describe the eligibility requirements to receive other government benefits available during retirement.

7. **Continued**

(b) (*3 points*) Recommend to which claimants, if any, Duffield should offer a cash payout. Show your work and justify your response.

(c) (*2 points*) The financial advisor working with these claimants has suggested that individuals choose the scenario (continue collecting LTD benefits or accept the early retirement incentive) that maximizes after-tax value to age 65.

Recommend which claimants, if any, should accept Duffield's offer, based on the financial advisor's criteria. Show your work and justify your response.

(d) (*3 points*) Claimants #1 and #2 decline Duffield's offer. Claimant #3 accepts Duffield's offer at the end of the current fiscal year.

(i) Define this event under IAS 19.

(ii) Describe the accounting treatment.

(iii) Duffield's accounting department has prepared the draft accounting schedule for the company's current fiscal year:

Reconciliation of defined benefit obligation (DBO)	**Current fiscal year**
Opening DBO	608,755
Service cost	96,000
Interest cost at 3%	19,700
Benefit payments	(96,000)
Actuarial (gain)/loss	(98,880)
Closing DBO	529,575

During your review, you notice a number of errors.

Construct the correct table. State your assumptions and show your work.

8. (*7 points*) You are the benefit consultant for Franklin & Sons, a firm located in Quebec, which provides the following group insurance coverage for its employees, through Nevlins Insurance Co. (Nevlins):

- Basic life and accidental death and dismemberment (AD&D)
  - 3x Annual Earnings, up to a maximum of $600,000
  - Coverage terminates at age 65

- Long term disability
  - 60% of monthly income
  - Maximum benefit of $5,000 per month
  - Coverage terminates at age 65
  - 26 week elimination period
  - 2 year own occupation, any occupation thereafter

There is no waiting period for the benefit coverage and premiums are 100% paid by Franklin & Sons. Future salary increases are assumed to be 3.0% per annum.

Franklin & Sons has hired the following new employees:

1) Employee Name: Alfa
   Employee Age: 50
   Annual Salary: $100,000

2) Employee Name: Beta
   Employee Age: 63
   Annual Salary: $90,000

3) Employee Name: Zeta
   Employee Age: 62
   Annual Salary: $120,000

(a) (*1 point*)

(i) Define a contract of adhesion under the Quebec Civil Code.

(ii) Describe the major consequences when an insurance contract is considered a contract of adhesion.

8. Continued

(b) (*2 points*) Below is the insurance contract for Franklin & Sons' long term disability benefit for your review:

General Provisions	
- Insurer	Nevlins Insurance Co.
- Policy No.	Z98765-4321
- Policyholder	Franklin & Sons
- Benefit	Long Term Disability
- Effective date	Employee's Date of Hire
Summary of Plan Provisions	
- Benefit formula	60% of monthly salary
- Maximum	$5,000 per month
- Elimination period	26 weeks
- All source maximum	85% of net income
- Termination age	Coverage terminates at the earlier of recovery, death, or attainment of age 65.
- Disability definition	2 year own occupation, any occupation thereafter.
Tax Status	Non-taxable

Critique the disability contract for Franklin & Sons. Assume the table provided above represents the entirety of the contract for this benefit.

(c) (*2 points*) Calculate the amount of group life and AD&D benefits payable in the following situations. Justify your response.

(i) (*1 point*) Alfa dies from an accident a few days after being hired. At the time of his death, Alfa's group benefits application has been accepted without modification by Nevlins. The accepted policy has not been delivered back to Franklin & Sons, as the initial premium is still outstanding.

(ii) (*1 point*) Two and a half years after Zeta's group coverage became effective, she commits suicide. It is also discovered at the time that due to a clerical error, Zeta's age was misstated. She was actually age 63 when she was hired.

Question 8 continued on the next page.

8. Continued

(d) (*2 points*) One year after his coverage became effective, Beta retires from Franklin & Sons and would like to convert his group life coverage into individual life coverage.

(i) (*1 point*) Describe Beta's conversion rights.

(ii) (*1 point*) Calculate the possible range of Beta's conversion amount. State any assumptions and show your work.

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

USE THIS PAGE FOR YOUR SCRATCH WORK

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