
SOCIETY OF ACTUARIES
Group and Health Core Exam - Canada

Exam GHCORC

MORNING SESSION

Date: Wednesday, October 30, 2013
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 6 questions numbered 8 through 13.

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 since 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.

Tournez le cahier d'examen pour la version française.

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

- 1.** (4 points) Company ABC operates in Canada and is looking at expanding into the U.S.
 - (a) (3 points) Describe and compare the eligibility criteria applicable to government health care programs in Canada and the U.S.
 - (b) (1 point) Outline how government health care programs are funded in Canada and in the U.S.

2. (13 points) Joey Bats is a Canadian company that manufactures baseball bats. The company employs 75 individuals; 25 in each of British Columbia, Ontario and Quebec. The following table highlights the current plan design for all active employees:

| Benefit | Provisions |
|----------------------|--|
| Life Insurance | Two times annual salary, rounded up to the nearest \$1,000 |
| Long-Term Disability | 66.7% of pre-disability monthly income beginning after 17 weeks (the STD benefit period) |
| Drug | Prescription drugs: 80% reimbursement until the member is out-of-pocket \$1,000, and then 100% reimbursement Drug benefits end at age 65 |
| Travel Medical | Emergency out-of-province and out-of-country services: 100% reimbursement to a lifetime maximum of \$60,000 |
| Dental | Basic services: 100% reimbursement Preventative services: 80% reimbursement Major services: 50% reimbursement Annual maximum: \$1,000 per person for all services |

Employees may elect single or family level coverage for the Drug, Travel Medical, and Dental benefits.

Joey Bats pays 50% of the premium for each benefit.

In addition, the following information is available:

- Monthly Life insurance rate:
 - \$0.20 per \$1,000 of coverage for males
 - \$0.15 per \$1,000 of coverage for females
- Monthly LTD rate: \$1.84 per \$100 of monthly benefit
- Monthly drug and travel medical (combined) premium: \$125 (for non-smoker) and \$150 (for smoker)
- Monthly dental premium: \$100 (for both smoker and non-smoker)
- Premium tax (if applicable) is included in all of the premium rates
- In British Columbia, sales tax is not applicable
- In Quebec, the sales tax is 9.00%
- Joey Bats does not pay for the cost of the British Columbia medical services plan premium

Joey Bats hires you, a group benefits consultant, to address a range of issues related to discrimination and taxation.

- (a) (3 points) One of Joey Bats' competitors in Ontario recently faced legal challenges based on discrimination. Joey Bats would like information on discrimination laws in Ontario, and an assessment of any risks based on the current plan design. Draft your response.

2. Continued

- (b) (2 points) You have been given the following information on two of Joey Bats' employees:
- John is a single non-smoking employee in British Columbia whose annual salary is \$60,000. John's marginal tax rate is 22% federal and 10% provincial.
 - Jacques is a single non-smoking employee in Quebec whose annual salary is \$90,000. Jacques' marginal tax rate is 22% federal and 23% provincial.

Calculate the annual taxes payable by each of John and Jacques as a result of premium payments under Joey Bats' plan. Show your work.

- (c) (7 points) Joey Bats wants to make changes to the current plan without changing the insurance arrangements in order to achieve the following objectives in order of importance:
1. Maintain Joey Bats' costs at current levels;
 2. Minimize employees' taxable benefits; and
 3. Minimize the employees' costs while maintaining the same net benefits.
- (i) Determine changes to achieve optimal results for Joey Bats and John. Show your work.
- (ii) Determine changes to achieve optimal results for Joey Bats and Jacques. Show your work.
- (iii) Explain why the results may be different for John and Jacques.
- (d) (1 point) Over the course of the next year, Joey Bats is considering changing its insurer. State the insurance company requirements related to continuation of coverage should Joey Bats change insurers.

3. (13 points) Company XYZ operates in Ontario and offers its employees post-retirement drug coverage. XYZ is considering expanding its operations across Canada. You are given the following information with respect to XYZ's employee population and actuarial assumptions for the post-retirement drug plan:

- Discount rate: 5% per annum
- Drug trend rate: 4.5% per annum
- Benefit eligibility requirement: age 55
- Annual termination rate: 2% per annum to age 55, 0% per annum beyond
- Retirement rate: 100% at age 65
- Pre-retirement mortality rate: 0% per annum
- Age 65 annuity factor (including trend): 15
- Current per capita drug cost: \$1,000
- Current per capita Ontario Drug Benefit cost: \$650
- Company XYZ pays 100% of the cost of the plan
- Coverage level: single

| Employee | Age | Years of Service |
|----------|-----|------------------|
| 1 | 35 | Just hired |
| 2 | 45 | 10 |
| 3 | 60 | 15 |

- (a) (2 points) Compare and contrast 2010 drug reform in Ontario and Quebec.
- (b) (2 points) Describe the areas of concern that a national pharmacare program could address and the program's potential impact on XYZ.
- (c) (4 points) Calculate the Projected Benefit Obligation, Accrued Benefit Obligation and Service Cost for each employee. Show your work.
- (d) (2 points) The Ontario government is considering changing its provincial program to become second payer to private plans. Calculate the impact this change would have to the costs from part (c). Show your work.
- (e) (3 points) XYZ is looking for cost containment strategies to reduce the accrued benefit obligation. They have already considered changing the co-insurance, deductible, dispensing fee or drug formulary and determined these actions would not achieve the desired impact. Recommend three additional changes and describe the impact of each change from both the employer and employee perspective. Justify your recommendations.

4. (6 points) You have just been hired by GoBig, a major Canadian life insurance company, to work in the life insurance corporate department. One of your tasks is to prepare the company's financial statements.

You have calculated the following elements for the financial year 2012:

- Reserve for life insurance policies = \$15,340,000
- Experience rated refund reserve adjustment = \$1,720,000
- Taxable income reported to policyholders = \$114,000

You are given that the investment loss carryforward is \$4,425,000.

- (a) (2 points) Describe the types of life insurance policy reserves prescribed by regulations.
- (b) (2 points) As it relates to the calculation of taxable income for a life insurance company:
- List the items typically included in income.
 - List the items typically deducted from income.
- (c) (2 points) Describe steps to compute investment income tax for a Canadian life insurance company and calculate the 2012 investment income tax for GoBig. Show your work.

5. (4 points)

- (a) (1 point) Describe the basic principle of IAS 19 and list five types of employee benefits where IAS 19 applies.
- (b) (3 points) Compare FAS 106, IAS 19 (2008) and IAS 19 (2011) standards with respect to accounting for postretirement benefits in the following areas:
 - (i) Costs recognized in profit and loss
 - (ii) Gain/Loss recognition
 - (iii) Past service cost recognition

6. (16 points) You are the consulting actuary for Frere Jacques, a Canadian insurance company that is interested in purchasing the LTD block of business of a U.S. insurance company.

You are given the following financial information for the most recent three years as well as the forecast for the current year (2013) and the next two years.

| | 2010 | 2011 | 2012 | 2013F | 2014F | 2015F |
|----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Total Premium | | \$1,000,000 | \$1,200,000 | \$1,500,000 | \$2,000,000 | \$2,700,000 |
| Paid Claims | | \$300,000 | \$400,000 | \$600,000 | \$790,000 | \$950,000 |
| Expenses | | \$35,000 | \$45,000 | \$75,000 | \$85,000 | \$100,000 |
| Change in Reserves | | \$500,000 | \$650,000 | \$700,000 | \$1,000,000 | \$1,500,000 |
| Taxes | | \$50,000 | \$30,000 | \$40,000 | \$35,000 | \$50,000 |
| Net Income | | \$115,000 | \$75,000 | \$85,000 | \$90,000 | \$100,000 |
| | | | | | | |
| Year-End Assets | \$1,000,000 | \$1,615,000 | \$2,590,000 | \$3,475,000 | \$4,765,000 | \$6,765,000 |
| Year-End Liabilities | \$200,000 | \$700,000 | \$1,600,000 | \$2,400,000 | \$3,600,000 | \$5,500,000 |
| Year-End Retained Earnings | \$800,000 | \$915,000 | \$990,000 | \$1,075,000 | \$1,165,000 | \$1,265,000 |

- (a) (2 points) Briefly describe GAAP reporting in the U.S. and Canada.
- (b) (2 points) Describe how statutory reporting differs from GAAP in the U.S. and Canada.
- (c) (5 points) Compare the sustainable and actual growth rates for each of 2011, 2012 and 2013F, including an explanation of each component of sustainable growth and its impact on overall growth during the 3-year period. Show your work.
- (d) (2 points) Describe strategies for Frere Jacques to address differences between sustainable and actual growth.
- (e) (4 points) Critique the forecast provided by the company in light of the results of the last three years and prepare a list of questions for management to justify the forecast.
- (f) (1 point) Describe techniques available to cope with the uncertainty inherent in the forecast.

7. (4 points) ABC Insurance is a Canadian company looking at the effects of modifying their financial reporting process to comply with IFRS.

The company has the following insurance contracts:

- I. A contract with Policyholder W with group life insurance of \$50,000 payable to the employees' beneficiaries upon death.
 - II. A contract with Policyholder X providing administrative services only for a group health plan.
 - III. An individual life contract with Policyholder Y. The liability for this contract as of December 31, 2011 is \$10,000 (\$12,000 on a non-discounted basis).
- (a) (2 points) Outline the general process for classifying contracts and contract components under the International Accounting Standards Board accounting guidance.
- (b) (1 point)
- (i) Outline the IFRS 4 requirements for an insurance contract; and
 - (ii) Indicate if contracts with policyholders W, X and Y fall within the scope of IFRS 4. Justify your answer.
- (c) (1 point) On January 10, 2012, it was determined that the liability for the contract with Policyholder Y at December 31, 2011 was inadequate based on additional cash flow testing and changes in market conditions. Explain the accounting treatment that should be applied.

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

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