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**SOCIETY OF ACTUARIES**  
**Group and Health Core Exam – U.S.**

**Exam GHCORU**

**MORNING SESSION**

**Date:** Wednesday, April 29, 2015

**Time:** 8:30 a.m. – 11:45 a.m.

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**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 11 questions numbered 1 through 11.
  - b) The afternoon session consists of 7 questions numbered 12 through 18.

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



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

**1.** (5 points)

- (a) (1 point) Describe beneficiary protections related to formulary design which ensure necessary drug treatments are provided to enrollees in Part D plans.
- (b) (1 point) Identify the steps an enrollee would take to get a Part D plan to pay for a drug that is not on the plan's formulary.
- (c) (3 points) You work at a retail pharmacy and are explaining to your two 75-year old customers how their various coverages will help them pay for the items in the table below:

<b>Item</b>
Pneumococcal vaccine
Shingles vaccine
Anticonvulsant brand medication
Antibiotic brand medication
Multi-vitamin
Dandruff shampoo

- Customer A is enrolled in Original Medicare, purchases a Part D plan, but does not have any other coverage.
- Customer B is enrolled in Original Medicare, is enrolled in your state's Medicaid plan, and has the same Part D plan as Customer A.

Explain which of their coverage(s) will provide reimbursement towards each item for each customer.

2. (5 points) Based upon your research, you have decided to price an issue age product with a 5 year contract duration. You have identified the following key information:

Duration	Lapse Rate	Mortality Rate	Claim Costs Per Policy Per Year	Maintenance Expenses Per Policy Per Year
1	30%	Included In Lapse Rates	\$2	\$5
2	15%		\$5	\$5
3	10%		\$10	\$5
4	10%		\$20	\$5
5	10%		\$35	\$5

- Acquisition expenses – 100% of first year premium
- No provision for adverse deviation
- Interest rate of 0%
- Annual gross premium of \$30

Calculate the following values:

- (a) (2 points) Benefit reserve at the end of the 2<sup>nd</sup> policy duration
- (b) (2 points) Maintenance expense reserve at the end of the 2<sup>nd</sup> policy duration
- (c) (1 point) DAC reserve at the end of the 2<sup>nd</sup> policy duration

**3.** (4 points)

- (a) (1 point) Describe key features of U.S. tax law related to group health and life benefits.
- (b) (3 points) Your manager has given you the following chart detailing the tax treatment for various group benefits for the HR manual.

	Taxable?
1. Premiums paid by employer for HMO plan benefits	Sometimes <sup>1</sup>
2. Disability income benefit payments	Never
3. Premiums paid by employer for group term life insurance benefit of 100% of salary	Always
4. Cafeteria plan cash benefits	Sometimes
5. Long term care insurance benefit payments	Always
6. Payments made from medical savings account (MSA) or flexible spending account (FSA)	Never
7. Premiums for dependent life insurance coverage of \$10,000	Sometimes

<sup>1</sup> Premiums are taxable for employees with salaries below \$40,000.

Evaluate the accuracy of the information in the chart, and recommend any corrections or additional qualifying footnotes.

4. (5 points) Prepare a chart in which you compare and contrast the following [A] accounting standards across the following [B] dimensions:

List [A] – Accounting Standards:

- FAS 106
- GASB
- IAS 19

List [B] – Dimensions:

- The types of benefits to which the standards are applied.
- The types of organizations to which the standards apply.
- Philosophy of benefit allocation over employment years.
- Treatment of settlement costs.

5. (5 points) You are working in the financial reporting area of a lawn mower manufacturing company, GreenLawn. GreenLawn has just hired a new VP of Operations who is unfamiliar with the manufacturing industry. The VP has asked you to educate him on how to interpret the financial statements of a manufacturing company.

- (a) (1 point) The VP would like to better understand the Cash Flow-Production Cycle.
- (i) Describe the Cash Flow-Production Cycle.
- (ii) Describe the two principles demonstrated by the Cash Flow-Production Cycle.
- (b) (4 points) Describe the three main sources of information in evaluating the financial health of a company based on financial statements, and how they relate to each other.

- 6.** (4 points) You recently started as an actuary at Royals Insurance Company (RIC), which only sells small group medical products in one state – Zealander, where the model NAIC rules apply. Your boss, Ms. Lourde, has given you your first assignment: complete the rate certification for RIC’s two classes of small group business.

As you sit down to complete the rate certification, you organize your thoughts as follows:

- (a) (1 point) List rate increase restrictions which may apply to RIC’s small group block of business.
- (b) (1 point) Discuss testing which the state department of insurance (DOI) may require in the certification.
- (c) (2 points) Ms. Lourde showed you a letter which the DOI sent last year, stating that your actuarial memorandum was deficient.

Review last year’s outline below and recommend additions and changes.

- (i) Purpose of Filing
- (ii) Assumptions:
  - Increase requested
  - Mortality
  - Impact of contractual arrangements with providers
- (iii) Use of Past Experience to Project Future Results
  - Demographic changes
- (iv) Projected Loss Ratio, with comparison to statutory requirement
- (v) Reliance on junior actuarial student

7. (4 points) Your 55-year-old uncle recently died. He had been married to your 52-year-old aunt for 25 years and they lived in Nebraska. Your uncle worked throughout their marriage with a salary near the Social Security taxable income limit. Your aunt worked for 7 years in her 20s and has not worked since. She is healthy, owns her home, and has no dependents. She has asked for your help in planning her financial future.
- (a) (2 points) Describe publicly-funded retirement, health, disability, and long-term care benefits available to your aunt as she ages, assuming she does not work or remarry.
- (b) (2 points) Describe how your response to (a) changes, if your aunt starts working. Assume the maximum work requirement applies regardless of her age.



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8. (10 points) You are the consultant to Highlander Industries, a large U.S. employer offering a postretirement medical plan to a closed group of Medicare-eligible retirees. All participants in the plan are retired and over the age of 65, and eligibility is frozen so there will be no new entrants into the plan.

The current retiree medical benefit is a self-funded group Medicare Supplement plan. The retirees receive a prescription drug benefit through participation in the self-funded prescription drug plan offered to the active employees, and Highlander Industries files for and receives the Retiree Drug Subsidy (RDS). The retirees have always been required to make cost-sharing contributions to the plan as a fixed percentage of the expected cost. Highlander Industries has reserved the right to make future changes to the plan.

The company recently hired a new CFO, Mr. Kurgan, who would like to discontinue the postretirement medical plan. The director of Human Resources, Mr. MacLeod, would like to continue offering a benefit to the Medicare-eligible retirees but is open to alternatives to the current plan structure. You have been asked to work with both Kurgan and MacLeod to develop a recommendation for the Board.

- (a) (2 points) Kurgan is of the opinion that the Affordable Care Act (ACA) has reduced the need for employers to offer postretirement medical coverage.
- (i) List and describe provisions of the ACA which impact postretirement medical plans.
  - (ii) Evaluate the applicability of each provision to the Highlander Industries postretirement medical plan.
- (b) (2 points) You are given the following information about the existing plan. Calculate the Net Periodic Postretirement Benefit Cost for 2015.

Discount Rate:	5.00%
APBO as of 1/1/2015:	\$10,000,000
Expected Benefit Payments:	\$800,000
Expected Return on Assets:	The plan is not funded
Amortization of Transition (Asset) or Obligation:	\$0
Amortization of Prior Service Cost:	(\$35,000)
Amortization of Net (Gain) or Loss:	\$65,000
Average Service at Retirement:	17.25 years
Average Expected Future Lifetime:	12.50 years

## 8. Continued

- (c) (1 point) List and describe assumptions required to perform an actuarial valuation of the Highlander Industries postretirement medical plan.
- (d) (3 points) Kurgan and MacLeod have agreed to continue the plan. The plan will be amended such that Highlander Industries will provide a fixed contribution of \$3,000 per retiree per year, which is equivalent to the current employer cost (expected cost less retiree contributions). Future cost increases will be the responsibility of the retiree. The plan design will be changed to a fully-insured Medicare Advantage Plan with a prescription drug benefit (MAPD). The premium cost is equal to the total current expected benefit cost (net of RDS). The amendment will decrease the APBO by 20%.
  - (i) (2 points) Calculate the revised Net Periodic Postretirement Benefit Cost for 2014, assuming a straight-line amortization method.
  - (ii) (1 point) Discuss the impact of the plan design and contribution requirements from the perspective of the retiree.
- (e) (2 points) List and describe changes to the actuarial assumptions which would be required to value the amended plan.

**9.** (5 points) You are leading several sessions at a conference on insurance regulation. Your first session is with a group of employers on the topic of regulation as it applies to providing benefits to their employees.

- (a) (1 point) Explain the applicability of ERISA to the group plans below.
- (i) Group A – government plan maintained by state or local government for their employees
  - (ii) Group B – church plan maintained by a tax-exempt church
  - (iii) Group C – plan required by state law such as disability insurance
  - (iv) Group D – covering self-employed persons
  - (v) Group E – fully-insured group health coverage at a small, publicly-traded company
- (b) (1 point) Outline coverage offerings which are subject to ERISA.

Your second session is with a group of actuarial students who have just started working for state departments of insurance.

- (c) (3 points)
- (i) Identify the overarching means or steps of insurance regulation.
  - (ii) Provide two examples of specific state regulatory actions for each of the steps identified in (i).

**10.** (7 points) Mandolin Pennyworth is an 85-year-old retiree enrolled in Medicare Parts A and B and has coverage provided by her former employer Celtic Dreams. Over the course of the next calendar year, Mandolin expects to incur the following medical expenses in this order:

- One 3-day long inpatient stay with covered allowed facility cost of \$13,000
- Three primary care physician visits with covered allowed cost of \$250 each
- Medical equipment with covered allowed cost of \$100
- One 3-day long Skilled Nursing Facility (SNF) stay with a covered allowed facility cost of \$200 per day

**Medicare Part A Plan Design Provision Excerpt:**

- \$1,200 deductible
- \$0 insured cost share after deductible for first 60 days of inpatient care
- \$0 insured cost share for first 20 days at a SNF
- \$150 per day copayment for days 21-100 at a SNF

**Medicare Part B Plan Design Provision Excerpt:**

- \$150 deductible, 20% coinsurance applicable to all services

**Celtic Dreams Plan Design Provision Excerpt:**

- \$500 deductible applies to all non-physician services
- 5% coinsurance on inpatient facility services
- 10% coinsurance for SNF and medical equipment
- \$50 primary care physician copays; deductible does not apply

Assume all allowed costs are calculated based on Medicare approved amounts.

- (a) (2 points) Describe the challenges Celtic Dreams might have providing retiree health benefits and what solutions the company could develop to meet these challenges.
- (b) (5 points)
- (i) (1 point) List and describe methods of coordinating benefits between Medicare and other group health insurance.
- (ii) (4 points) Calculate Mandolin's cost for these medical expenses using these different methods. Show your work.

**11.** (6 points) You have been asked to calculate claims reserves on a GAAP basis for a number of lines of business for your company. Kandi, your supervisor, requested you provide additional information on developing claim reserves with respect to:

- (a) (2 points) Claim reserve development in general
- (b) (2 points) An established major medical block
- (c) (2 points) A newly released critical illness line of business

Draft your response.

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

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