SOCIETY OF ACTUARIES
Group and Health – Advanced

Exam GHADV

AFTERNOON SESSION

Date: Thursday, April 27, 2017
Time: 1:30 p.m. – 3:45 p.m.

INSTRUCTIONS TO CANDIDATES

General Instructions

1. This afternoon session consists of 7 questions numbered 9 through 15 for a total of 40 points. The points for each question are indicated at the beginning of the question. Questions 9-12 pertain to the Case Study, which is enclosed inside the front cover of this exam booklet.
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 GHADV.
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.

© 2017 by the Society of Actuaries
475 N. Martingale Road
Schaumburg, IL 60173-2226

Printed in the U.S.A.
Exam GHADV

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****
Afternoon Session
Beginning with Question 9

Questions 9-12 pertain to the Case Study.
Each question should be answered independently.

9. (*5 points*)

(a) (*1 point*) Explain the importance of adjusting for patient risk to properly assess the effectiveness of a disease management (DM) program.

In addition to Exhibit 7, you are given the following from Royale Health:

Non Chronic Population Statistics		
Metric	Baseline Year	Intervention Year
Average Cost Per Member Per Month (PMPM)	$750	$810
Average Risk Score	1.01	1.02

Chronic Member Intervention Year Data			
Chronic Grouping	Terminating	Continuing	Newly Identified
Average Cost PMPM	$680	$675	$596
Member Months	63,000	117,000	54,000

- Program Costs: $160 PMPM

(b) (*3 points*) Calculate the total dollar claims savings for this DM program for the following scenarios:

(i) Not normalized for risk.

(ii) Normalized for risk.

Show your work.

(c) (*1 point*) Recommend whether or not you should continue using this DM program. Justify your response.

Questions 9-12 pertain to the Case Study.
Each question should be answered independently.

10. (*6 points*) You are the actuary for an Independent Practice Association (IPA). Quantum proposes a bundled payment arrangement for Caesarean sections. Currently, the contracted unit cost for Caesarean sections increases 2% annually.

(a) (*3 points*)

(i) Describe six risks to the IPA of adopting a bundled payment contract with Quantum.

(ii) Describe the ways the IPA can mitigate risks involved with adopting a bundled payment contract.

Quantum proposes a bundled payment rate for 2018 of $13,000. You are given:

- The 2016 costs in Exhibit 6, projected 2017 costs in Exhibit 6A, and target 2018 trends in Exhibit 6B.
- The 2017 cost trend is 5% for supplies.
- The IPA provides all professional services at Hospitals A, B, and C and has agreed to accept the balance after facility and supply charges are paid out of the bundled payments.
- Facility charges for 2018 are expected to be 5% higher than the projection in Exhibit 6A.

(b) (*2 points*) Recommend whether or not the IPA should accept this bundled payment rate. Justify your response.

(c) (*1 point*) Recommend whether or not Hospital A should accept this bundled payment rate. Justify your response.

Questions 9-12 pertain to the Case Study.
Each question should be answered independently.

11. (*9 points*) You are the opining actuary for Quantum at Skyfall.

(a) (*2 points*) Describe the considerations for estimating and analyzing incurred claims according to actuarial standards of practice.

(b) (*1 point*) Explain the interplay of the income statement and balance sheet with regards to claim reserving.

(c) (*1 point*) Describe types of statements of actuarial opinion regarding health insurance liabilities and assets.

You are given Exhibits 1 and 5, and the following paid losses by Incurred Month for the PPO - Small Group (ACA-Compliant) block of business:

Incurred month	Cumulative paid claims at 12/31/2016 (in 000's)
Oct-16	$1,528
Nov-16	$1,340
Dec-16	$102

- Assume all losses are completely paid after 12 months.
- The completion factor for September 2016 is 72.2%.

(d) (*3 points*) Calculate the incurred but not reported (IBNR) reserve for the incurral months October 2016 – December 2016 for the PPO - Small Group (ACA-Compliant) block of business as of 12/31/2016 using the Without High and Low Averaging technique. Show your work.

(e) (*1 point*) Calculate the first lag month age-to-age factors for the Quantum Legacy III – Individual block of business for July 2015 through December 2015. Show your work.

(f) (*1 point*) Recommend whether or not paid claims from the PPO - Small Group (ACA Compliant) block of business should be combined with paid claims from the Quantum Legacy III - Individual block of business for the purpose of establishing IBNR estimates. Justify your response.

Questions 9-12 pertain to the Case Study.
Each question should be answered independently.

12. (*4 points*)

(a) (*1 point*) List the common exclusion criteria for measuring the outcomes of a disease management (DM) program.

You are given Exhibit 8 and a 5% assumed utilization trend.

(b) (*1 point*) Calculate the savings due to averted chronic admissions for Royale Health's DM program using the actuarially-adjusted historical control group methodology. Show your work.

(c) (*2 points*)

(i) Describe the issues with applying the actuarially-adjusted historical control group methodology to Royale Health's DM program for calculating savings.

(ii) Recommend solutions to mitigate the issues identified. Justify your response.

13. (*4 points*)

(a) (*1 point*) Describe the five steps of the Lean Six Sigma model for continuous quality improvement.

(b) (*3 points*) Describe the tools and programmatic approaches used to change physician behavior.

14. (*5 points*)

(a) (*1 point*) Compare and contrast the purpose of premium deficiency reserves (PDR) under Statutory accounting and GAAP accounting.

You are the insurance regulator for three companies: A, B, and C, with the following characteristics:

- Each company writes small-group (SG) and large-group (LG) business.
- The net worth for each company is $5 million before consideration of PDRs.
- The risk-based capital levels for regulatory intervention for each company are:
  - Company action level is $4 million
  - Regulatory action level is $3 million
  - Authorized control level is $2 million
- Projection results for the three companies are:

Projected Gain (Loss) (in '000s)			
	A	B	C
SG	$(500)	$2,000	$(2,500)
LG	$(500)	$(1,000)	$4,000
Total	$(1,000)	$1,000	$1,500

(b) (*4 points*)

(i) Create a chart of the PDR and the resulting net worth for each company at the beginning of the PDR determination period using:

- Block-by-block basis
- Aggregate basis

Show your work.

(ii) Calculate the projected net worth for each company at the end of the PDR determination period. Show your work.

(iii) Identify the applicable regulatory intervention level for each of A, B, and C. Justify your response.

15. (*7 points*) You are a consulting actuary specializing in group long-term disability (LTD). One of your large clients is considering self-funding its LTD plan.

(a) (*1 point*) List the challenges in applying credibility in LTD.

You are given the following about your client:

- Average claims: $45,000
- Standard deviation of claims: $15,000
- Number of expected claims: 1,278

LTD Claim Duration	Number of Expected Terminations
4 to 24 months	334
25 to 60 months	221
61 to 120 months	128
> 120 months	33

Your client considers the LTD block fully credible if observed claims are within 5% of expected claims 95% of the time.

Full credibility in the 1987 Commissioner's Group Disability Table (1987 CGDT) standard is determined from the number of expected terminations that yields an 85% probability that observed terminations are within 5% of expected terminations.

(b) (*1 point*) Calculate the credibility factor for the LTD block, according to limited fluctuation credibility theory. Show your work.

(c) (*1 point*) Calculate the credibility factor for the > 120 month duration, using the 1987 CGDT. Show your work.

(d) (*2 points*) Compare and contrast the 2012 Group Long-Term Disability Table (2012 GLTD) and the 1987 CGDT.

(e) (*2 points*) Describe the types of follow-up studies for testing the adequacy of reserve methodologies and the accuracy of the resulting estimates.

****END OF EXAMINATION****
Afternoon Session

USE THIS PAGE FOR YOUR SCRATCH WORK

USE THIS PAGE FOR YOUR SCRATCH WORK