SOCIETY OF ACTUARIES
Group and Health – Company/Sponsor Perspective

Exam CSP-GH

AFTERNOON SESSION

Date: Friday, November 4, 2011
Time: 1:30 p.m. – 4:45 p.m.

INSTRUCTIONS TO CANDIDATES

General Instructions

1. This afternoon session consists of 10 questions numbered 13 through 22 for a total of 60 points. The points for each question are indicated at the beginning of the question. There are no questions in the afternoon session that 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 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 CSP-GH.
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.

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Exam CSP-GH

****BEGINNING OF EXAMINATION****
Afternoon Session
Beginning with Question 13

13. (*4 points*) Pouilly Fuisse Inc. (PFI) is a large multinational company. You are the consulting actuary for PFI's pension plan. Due to the transition from Financial Accounting Standard Number 106 (FAS 106) to International Accounting Standard 19 (IAS 19), you have been asked by PFI to peer review the work of the internal actuary pertaining to employee benefits.

You have been given the following about the post-retirement benefit plan of PFI as of December 31, 2011:

- Defined Benefit Obligation = $10,000,000
- Unrecognized Past Service Cost = $2,000,000
- Unrecognized Loss = $6,000,000

(a) (*1 point*) Define the categories of employee benefit programs under IAS 19.

(b) (*1 point*) Identify the accounting aspects of employee benefit programs under International Accounting Standards Board (IASB) rules.

(c) (*1 point*) Under IAS 19, calculate the net liability (or asset) of the plan as of December 31, 2011 assuming the Fair Value of Plan Assets is $3 million. Show your work.

(d) (*1 point*) Under IAS 19, calculate the net liability (or asset) of the plan as of December 31, 2011 assuming the plan is completely unfunded. Show your work.

14. (*6 points*) You are the chief actuary for Golden Years Life Insurance (GYLI), and have recently been tasked with determining the adequacy of the company's assets.

(a) (*1 point*) Describe regulatory requirements which necessitate asset adequacy analysis.

(b) (*1 point*) List the following:

(i) Published resources available for reference in your asset adequacy analysis.

(ii) The key recipients of your asset adequacy analysis.

(c) (*1 point*) Describe various methods you may use to demonstrate asset adequacy.

(d) (*1 point*) Describe situations when cash flow testing is not necessary according to Actuarial Standards of Practice (ASOP) guidance.

(e) (*1 point*) Compare asset adequacy analysis with solvency testing.

(f) (*1 point*) After issuing your opinion, you are notified that the balance sheet you used in your analysis had material misstatements. Describe the guidelines you should follow and the actions you would take as a result.

15. (*8 points*) Mojito Manufacturing (MM) is a for-profit employer with 3 employees and has average employee annual wages of $20,000. The company owner is considering the tax implications of providing medical insurance for her employees under the Patient Protection and Affordable Care Act (PPACA). Below are the medical insurance premiums MM is expecting by plan year:

	Plan Year	
	2013	2014
Total Group Annual Premium – Employer Paid	$6,500	$7,500
Total Group Annual Premium – Employee Paid	$1,500	$2,500
Grand Total	$8,000	$10,000

Premium rate attributes by employee for plan year 2014 are:

	Employee W	Employee X	Employee Y
Age	20	20	50
Family Composition	Single	Single	Single
Tobacco Use	Non-Smoker	Smoker	Non-Smoker
Total Annual Premium	$1,200	$1,600	$7,200

(a) (*1 point*) List the requirements under PPACA for small employers to receive tax credits for providing medical coverage to employees.

(b) (*2 points*) Calculate the tax credits MM qualifies for under PPACA for each plan year. Show your work.

(c) (*2 points*) Determine if the premiums by employee would be compliant under PPACA. Show your work.

(d) (*1 point*) List qualifications for plans to participate in health insurance exchanges.

(e) (*2 points*) Describe the benefit tiers for individual and small group market products offered in health insurance exchanges.

16. (*6 points*) An investment banking firm is interested in investing in a United States managed care plan whose only contracts are with state governments to provide health care services to Medicaid enrollees. They have asked you to prepare a report.

(a) (*3 points*) Describe the significant provisions of the Patient Protection and Affordable Care Act (PPACA) as it relates to these Medicaid managed care plans.

(b) (*3 points*) List and define five of the common operational problems in managed care plans which would most affect the Medicaid managed care plan in the post reform environment.

17. (*14 points*) You are a valuation actuary for Nimble and Trustworth-E (NATE), an insurer that offers group health coverage. You have been given the following claims triangle (claim amounts are in thousands):

		Month Paid						
		Jan	**Feb**	**Mar**	**Apr**	**May**	**June**	**Total Paid**
Month Incurred	**Jan**	1,000	1,200	512	92	45	0	2,849
	Feb		1,345	1,000	802	167	89	3,403
	Mar			1,240	910	502	201	2,853
	Apr				1,231	1,120	610	2,961
	May					1,500	800	2,300
	June						1,324	1,324
Total		1,000	2,545	2,752	3,035	3,334	3,024	15,690

Historical age-to-age factors

		Number of Months of Runout						
		1	**2**	**3**	**4**	**5**	**6**	**7**
Month Incurred	**Jul**	2.700	1.400	1.200	1.050	1.003	1.000	1.000
	Aug	2.400	1.100	1.080	1.040	1.005	1.001	1.000
	Sept	2.800	1.500	1.200	1.060	1.003	1.000	1.000
	Oct	2.300	1.300	1.100	1.040	1.009	1.004	1.000
	Nov	2.400	1.100	1.090	1.020	1.007	1.000	1.000
	Dec	2.200	1.600	1.400	1.100	1.030	1.005	1.000
Average		2.4667	1.3333	1.1783	1.0517	1.0095	1.0017	1.0000

(a) (*1 point*) List and briefly describe various types of claim liabilities and claim reserves held by NATE.

(b) (*2 points*) Describe considerations of data quality when establishing claim reserves.

(c) (*1 point*)

(i) Describe various methods of estimating claim reserves.

(ii) Identify circumstances in which each method is appropriate.

(d) (*4 points*) Compute the IBNR reserves for NATE using simple averaging of historical age-to-age factors. Show your work.

(e) (*1 point*) Explain reasons why smoothed development factors should be used.

(f) (*5 points*) Compute the IBNR for the March date of service for NATE using the declining percentage smoothing technique. Use a 70% of prior declining percentage in your calculation. Show your work.

18. (*6 points*) You're an actuary for Big 10 Health Insurance Company which is considering the acquisition of Big 12 Health Insurance Company. You have been tasked with completing the actuarial appraisal of Big 12 Health Insurance Company.

You have obtained the following financial projections and assumptions from Big 12 Health Insurance Company:

	Year 1	**Year 2**
Members	35,000	32,000
Premium	$38,500,000	$42,880,000
Investment Income	$1,540,000	$2,144,000
Claims	$33,250,000	$32,800,000
Administrative System Expense	$2,000,000	
Employee Compensation	$3,000,000	$1,850,000

- Required capital is held as 7.5% of premium
- Commissions are paid as 3% of premium
- Reserves are always held as 25% of claims
- Current Capital $2,200,000
- Current Reserves $7,000,000

Big 10 Health Insurance Company uses the following assumptions:

- Tax Rate = 35%
- Risk Free Rate = 2%
- Expected Market Rate of Return = 4%
- Beta = 1.5
- Acquisition cost in year 1 = $12,000,000

(a)

(i) (*4 points*) Perform an actuarial appraisal. Show your work.

(ii) (*1 point*) Recommend whether to pursue the acquisition of Big 12 Health Insurance Company. Justify your recommendation

(b) (*1 point*) Describe different ways to validate the results of your appraisal.

19. (*3 points*) Describe product and service features that an insurer with insourced Disease Management would likely claim as superior to those offered by an insurer who outsources Disease Management to a vendor.

20. (*3 points*) You are the appointed actuary of La Jolla Insurance (LJI), a health insurance company, preparing the statement of actuarial opinion on the company's annual statement.

(a) (*1 point*) Describe the statements contained in the prescribed wording of the Opinion Section of the NAIC health annual statement.

In the course of your review, you realize the reserves are extremely conservative. Despite having a consistently stable claim pattern, LJI holds a margin of nearly 30%.

(b) (*1 point*) Explain how you would address this conservatism in your statement of actuarial opinion.

(c) (*1 point*) Explain how you would have addressed the reserves in your statement of opinion if the reserve had only a small margin of 2%.

21. (*5 points*) You are an actuarial student at the newly formed Risk-N-Reward Insurance Company. Your manager has asked you to give a presentation about risk management.

(a) (*2 points*) Describe the responsibilities of a Chief Risk Officer (CRO) versus those of other members of senior management.

(b) (*1 point*) Describe the major business applications of risk management.

You have been given the following information:

- Risk-adjusted return: $1,000,000
- Economic capital: $5,000,000
- Hurdle rate: 12%
- Growth rate: 8%

(c) Given the above information:

(i) (*1 point*) Calculate the Shareholder Value (SHV) and the Shareholder Value Added (SVA). Show your work.

(ii) (*1 point*) Explain what SHV and SVA measure.

22. (*5 points)* You are an actuary working for a health plan. Your company is currently working on the budgeting process for next year. There has been heavy debate regarding investing in quality and efficiency measures.

(a) (*1 point*) Explain the importance of measuring quality and efficiency.

(b) (*1 point*) List the considerations in assessing hospital quality.

A utilization program was implemented in 2009 to reduce the average length of stay (ALOS). You have the following data:

	2008	2009
Utilization only Demographics Factors	1.25	1.30

	Inpatient Metrics 2008			Inpatient Metrics 2009		
	Allowed Cost Per Day	Number of Days	Number of Admits	Allowed Cost Per Day	Number of Days	Number of Admits
Hospital ABC	$3,000	5,350	1,250	$3,300	5,720	1,300
Hospital XYZ	$3,500	6,500	1,300	$3,745	4,200	1,200

All other factors between the hospitals, such as case mix, are the same.

ALOS Benchmark	
-Plan is Well Managed	3.6
-Plan is Loosely Managed	4.6

(c) (*1 point*) Calculate the change in ALOS produced by the program. Show your work.

(d) (*2 points*) Evaluate whether the program was effective. Defend your answer.

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

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