Course 8G

Fall 2002
Society of Actuaries

****BEGINNING OF EXAMINATION 8****
HEALTH, GROUP LIFE & MANAGED CARE
MORNING SESSION

1. (*5 points*) You are the COO of ABC Insurance Company. You are considering outsourcing the claim and benefit administration function.

(a) Describe common claims and benefit administration problems and their effects.

(b) Describe measures of claim quality and methods to increase quality.

(c) Describe methods commonly used to control claims costs and claims administrative expense.

(d) Review circumstances under which you might outsource claims administration.

2. (*5 points*) A company has successfully implemented a flexible benefits program for its salaried employees with the following benefits:

<u>Basic Coverage</u>

Non-hospital and drug:	$300 deductible, 75% coinsurance
Hospital:	Semi-private room, $150 maximum per day
Out-of-country:	$50,000 maximum per year $500,000 lifetime maximum
Vision:	No coverage

<u>Enhanced Coverage</u>

Non-hospital and drug:	$100 deductible, 90% coinsurance
Hospital:	Semi-private room, $250 maximum per day
Out-of-country:	$80,000 maximum per year $1,000,000 lifetime maximum
Vision:	$200 maximum per year

Employee Palpatine incurred the following medical expenses over a one-year period:

Apr. 5	formulary drug prescription of $125
Jun. 10	formulary drug prescription of $180
Jul. 18	hospital stay, semi-private room at $180
Jul. 19	hospital stay, semi-private room at $180
Jul. 20	hospital stay, semi-private room at $180
Sept. 22	formulary drug prescription of $60
Dec. 5	new glasses at $280

(a) Identify and address the concerns the union might have with the company's proposal to offer this program to union members. Include design alternatives that could be substituted.

(b) Explain the general principles regarding selection that should be considered when implementing a flexible benefits program.

(c) Calculate the out-of-pocket expenses Palpatine would have paid under the Basic and the Enhanced options.

Questions 3 – 8 pertain to the Case Study

3. (*5 points*) Wonderful Life's small group block of business is experiencing deteriorating profits. The Chief Actuary believes part of this deterioration is due to the wearing off of underwriting. You have been asked to design a durational study for Wonderful Life's closed block of small group business using the data found in Table MM-7.

(a) (*1 point*) Describe the information that would be required to compile this study.

(b) (*1 point*) Describe the potential limitations of the data used in a durational study and the factors you should consider in adjusting the data.

(c) (*3 points*) Calculate the annual durational factors for Wonderful Life's closed block of small group experience using the data in table MM-7 and other relevant information on the small group block discussed in the case study. Show your work.

Questions 3 – 8 pertain to the Case Study

4. (*10 points*) Wonderful Life is considering the purchase of medical reinsurance that is a combination of quota share and specific excess. The quote they have received is as follows:

Specific excess

- 100% of claims in excess of $50,000
- Covers claims incurred from July 1, 2000 through June 30, 2001
- Reinsurance premium = $20.00 Per Employee Per Month

Quota share reinsurance

- 30% of claims incurred up to $50,000
- Ceding allowance: 20% of ceded premium
- Covers premium earned and claims incurred from July 1, 2000 through June 30, 2001

Wonderful Life's management has set a pre-tax ROE target of 25% while holding risk-based capital at 30% of premium. Current operating expenses are 15.1% of premium and pre-tax investment income is 3.0% of premium.

(a) (*4 points*) Calculate Wonderful Life's total pre-tax operating gain using the data in table MM-3 assuming Wonderful Life purchases this reinsurance coverage. Show your work.

(b) (*4 points*) Determine if Wonderful Life would have met its pre-tax ROE objectives:

(i) Without the reinsurance coverage.

(ii) With the reinsurance coverage.

(c) (*2 points*) Describe the other profit measures you could use in analyzing this business.

Questions 3 – 8 pertain to the Case Study

5. (*7 points*) You are the actuary for the Major Medical Division of Wonderful Life. You have been asked to develop a forecast for the major medical line.

You are given the data in Tables MM-3, MM-6, and MM-7.

(a) Describe the major projection elements governing the design of a financial forecast.

(b) Identify additional information you would need to develop a forecast and any concerns about the information you have been provided.

6. (*6 points*) Wonderful Life is examining various methods of smoothing age-to-age development factors.

(a) *(4 points)* Calculate the first lag month's development factor for Wonderful Life using the most recent four months of experience from Table MM-4b under the following averaging approaches:

(i) Without Hi and Lo
(ii) Geometric Mean
(iii) Dollar-Weighted
(iv) Per Member Age-to-Age Ratios

(b) *(2 points)* Describe other methods that could be used to smooth age-to-age development factors.

Questions 3 – 8 pertain to the Case Study

7. (*9 points*) You are the pricing actuary for Wonderful Life. You have been asked to evaluate the expected cost trend for Group 6. You have been given the following data in addition to Tables MM-2 and MM-3.

	Option 1		Option 2	
	%EE's	Avg Cost	%EE's	Avg Cost
Sub-group 1	80%	5% Higher	90%	5% Lower
Sub-group 2	20%	20% Lower	10%	45% Higher

(a) *(2 points)* Calculate the expected claim cost per employee per month (PEPM) for the next renewal period beginning March 1, 2002 based on the current enrollment mix.

(b) *(5 points)* At open enrollment, employees in sub-group 2 of each option choose the other option. Calculate the expected trend for each option and determine the impact on the overall expected trend.

(c) *(2 points)* The employer is currently paying 70% of the cost of Option 1 and Option 2.

(i) Calculate the amount the employer and employee would pay PEPM based on the current rates and enrollment mix if the employer were to pay an equal amount under a fixed dollar cost scheme.

(ii) Describe the potential concerns associated with a fixed dollar cost scheme.

Questions 3 – 8 pertain to the Case Study

8. (*10 points*) You are an underwriter at Wonderful Life and have been given the following information:

- Tables BI with the following assumptions:
  - — The experience shown is for July 1, 2000 to June 30, 2001
  - — Amount of claims greater than $50,000 totals $540,000
- Tables MM-2
- Table MM-3a

(a) (*3 points*) Calculate the retrospective refunds for Group 4 and for Group 5. Show your work.

(b) *(5 points)* Wonderful Life is quoting its most popular $250 deductible plan to Bailey Industries for a March 1, 2002 effective date. Assume the quote will cover existing PPO employees with a fully insured plan and that quoted benefits are the same as their current plan. Calculate the composite, employee only, and employee plus dependent rates. Show your work.

(c) (*2 points*) Explain considerations in using past experience data for projecting future experience.

9. (*3 points*) Your consulting firm is hosting a roundtable breakfast for business leaders. The topic of your presentation is “Recent Managed Care Trends Affecting Employers.” Most attendees will be large, local employers.

(a) Describe general considerations related to this topic affecting all employers.

(b) Describe other relevant factors specific to the size of the employer.

****END OF EXAMINATION****
MORNING SESSION

****BEGINNING OF EXAMINATION 8****
HEALTH AND GROUP LIFE SEGMENT
AFTERNOON SESSION
Beginning With Question 10

10. (*4 points*) Senator Ima Crook from Anystate, USA has proposed a bill requiring Medicare to provide a prescription drug benefit.

This plan would be separate from medical benefits and would be the primary plan for purposes of coordination of benefits.

The plan would offer the following benefits:

- 90% of generic drugs after a $50 annual deductible.
- 80% of brand drugs after a $100 annual deductible.
- Unlimited annual benefit.

ACME Widget Company currently pays the entire cost of a retiree prescription drug plan with the following copayments per prescription:

- $10 on generic drugs
- $20 on brand drugs

Jill Pill is a retiree of ACME anticipating the following monthly drug usage:

	Number of Prescriptions	Average Cost/Prescription
Generic	5	$20
Brand	5	$100

If this bill is adopted:

(a) Describe the different coordination of benefit (COB) approaches an employer could consider in relation to the new plan.

(b) For each COB approach, calculate the total annual cost to ACME in connection with Jill's anticipated claims.

11. (*3 points*) You are the individual health insurance actuary for XYZ Insurance company.

(a) Describe the type of expense allocations that could be used for individual health products.

(b) Describe expenses that are typically taken into account in the pricing process and how they are reflected.

(c) Explain the criteria that the expense allocation method must meet.

12. (*5 points*) Using the US and Canadian tax treatment as examples, discuss the impact of taxation of premiums and benefits received on the design of employer-provided insurance programs. Include examples for Life, Disability, Medical, and Long-Term Care and discuss from both the employee and employer perspective.

13. (*5 points*) You are a product development actuary working for a multi-line insurance company. The company is developing an individual medical insurance product.

(a) Outline the types of premium rate and renewal guarantees that may be used and characteristics of each.

(b) Describe factors that influence the level of lapsation rates for these types of policies.

(c) Explain the differences between underwriting life insurance and underwriting for major medical insurance.

(d) Describe sources of information the underwriter might utilize.

14. (*3 points*) You are an actuary for JKL Life which has recently decided to enter the group medical line of business. You have been asked to lead a project to design the needed management information system.

(a) Review the challenges of producing management information reports.

(b) Describe information/reports that would be useful to analyze claims and expenses.

Questions 15 and 16 pertain to the Case Study

15. (*5 points*) The GLD Division of the Wonderful Life Insurance Company has been falling short of profit expectations on their group life business.

(a) Describe methods and considerations in the development of expected claims cost in the pricing of group life business.

(b) Recommend steps that Wonderful Life could take to lower their claim costs.

(c) Calculate the overall actual-to-expected ratio for Wonderful Life for 2001, using table GLD-2.

Questions 15 and 16 pertain to the Case Study

16. (*8 points*) The GLD Division of Wonderful Life markets both group and individual disability products. As the pricing actuary you have been asked to do a rate analysis for a new medical professional group LTD account. The group has requested a 90 day elimination period (ep) and 5 year maximum benefit period. It is believed that in order to win this account the rates should be no more than 5% higher than Wonderful Life's current manual rates for groups of similar plan designs.

You are given the following information in addition to tables GLD-5, GLD-6, and GLD-8:

- Expenses and profits are 25% of premium.
- New account premium is based solely on manual rates.
- The group is assumed to be comprised entirely of 37 year old males.
- The interest rate is zero.
- Calculations should utilize annualized termination rates. Actual termination rates equal expected termination rates.
- 90-day ep termination rates are:
  - year 1: annualized termination rate for 37 year old males = 0.50.
  - subsequent years: 20% higher than the termination rates for 180 day ep.

(a) (*6 points*) Using Wonderful Life's LTD 2000 incidence of claim experience, determine whether the marketing pricing expectations can be met:
  (i) For the requested plan design
  (ii) For a plan with a 180 day ep
  Show your work.

(b) (*2 points*) Review other possible plan design features to be considered in meeting the marketing pricing expectation.

17. (*4 points*) You are the product development actuary for ABC Life. The new marketing VP has approached you about expanding the individual DI line of business with a product geared towards the upscale professional marketplace. He claims that in order to differentiate this product the most generous benefit package possible must be offered. He suggests you set the rates accordingly.

(a) Describe the potential benefits that can be offered to meet the VP's request.

(b) Recommend which of the potential benefits should and should not be offered. Justify your recommendation.

18. (*7 points*) You have been hired as the consulting actuary for Company XYZ. Company XYZ implemented a flexible benefits plan four years ago, including broader choices for group life, LTD, medical, and dental benefits. Employees re-enroll for all benefits once a year. The life and LTD benefits each have one rate applicable to all employees, whereas the medical and dental benefits have different prices by option and family status. Company XYZ has observed higher than expected claims experience each year, and has noticed significant employee movement amongst the options from one year to the next.

You are given the following data for the most recent year.

Option	Dental Enrollment	Actuarial Value	Price Tag	Actual Claims
High	100	$1000	$1300	$150,000
Intermediate	250	$800	$900	$220,000
Low	150	$500	$400	$45,000
Total	500			$415,000

(a) (*2 points*) Describe design approaches that could be used to reduce the chance of unfavorable experience.

(b) *(1 point)* Explain the advantages and disadvantages of maintaining a single rate for the life and LTD benefits.

(c) (*3 points*) Assuming no change in the dental coverage offered and a 5% trend rate for the coming year:
(i) Propose potential pricing strategies, and
(ii) Calculate the resulting prices for the upcoming year.

(d) (*1 point*) Describe methods that XYZ may use to better estimate employee participation for next year.

19. (4 points) Your Uncle Henry is shopping for an LTC policy for himself and his spouse. Henry works for a large employer that offers group LTC coverage as part of its employee benefit package.

(a) Compare and contrast the benefit features and underwriting requirements between individual and group LTC coverages.

(b) Describe various ways that insurers determine eligibility for LTC benefit payments.

(c) Explain differences in continuity of coverage provisions between group and individual LTC policies.

20. (*5 points*) The Worksite Marketing area of your company is exploring the idea of offering a range of supplemental accident and health (A&H) products to associations of professionals. The proposal is to distribute the following A&H products through direct marketing methods:

- Cancer
- Hospital Indemnity Plan (HIP)
- Disability Income
- Critical Illness

(a) Describe underwriting guidelines and direct marketing approaches appropriate to this target market.

(b) For each of the proposed products:
  (i) Describe common product features
  (ii) Evaluate their appropriateness for the direct marketing initiative. Support your evaluation.

21. *(3 points)* You are a consulting actuary working in the Medicare supplement market. You have been asked by a state regulator to provide insight into Medicare supplement pricing. The state regulation allows only the NAIC model benefits, no underwriting, and insurers can only use community rating. Pre-existing conditions may be excluded for up to 6 months.

The following is an example of some of the monthly premium rates in one of the major markets in the state.

	Model Plan B	Model Plan H
Insurer A	$109.86	174.82
Insurer B	$114.75	205.25
HMO A	$118.72	173.84
Medicare Select Product	$84.80	Not offered

Explain what would cause different insurers to charge materially different rates for the above products.

22. (*4 points*) Company ABC is planning to implement a flexible benefits plan. The draft plan design includes life, LTD, medical and dental benefits, as well as a health care expense account. The medical and dental benefits include a core level of coverage plus two options, where the first option represents current coverage, and the second option provides enhanced benefits.

The current plan includes realistic prices for all benefits. Some of company ABC's competitors who offer a flexible benefits program include "time off with pay".

(a) Describe alternative pricing schemes for the proposed flexible benefits plan, including advantages and disadvantages of each.

(b) Describe the advantages of including time off with pay within the flexible benefit plan and outline the plan design considerations.

****END OF EXAMINATION****
AFTERNOON SESSION