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

Exam GHCORU

MORNING SESSION

Date: Wednesday, November 1, 2017

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 8 questions numbered 1 through 8
 - b) The afternoon session consists of 7 questions numbered 9 through 15.

The points for each question are indicated at the beginning of the question. Questions 2, 3, 9 and 10 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 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.

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****

Morning Session

1. (5 points) Managed Care Plan (MCP) is a health plan that contracts with the Centers for Medicare and Medicaid Services (CMS) to provide benefits to Medicare beneficiaries. MCP is planning to introduce a special needs plan (SNP) into its service area.

(a) (1 point) Describe each type of SNP and the circumstances under which each can be offered.

MCP is preparing to submit a bid to CMS to provide Medicare Advantage (MA) benefits in 2018. You are given the following experience and projection period assumptions.

	2016 Paid Claims PMPM	Annual Utilization Trend	Annual Unit Cost Trend
<u>Part A Benefits:</u>			
• Inpatient Hospital	\$300	2.0%	-1.0%
• Skilled Nursing Facility	\$100	2.0%	0.0%
<u>Part B Benefits:</u>			
• Physician Services	\$150	3.0%	2.0%
• Hospital Outpatient	\$200	2.0%	2.0%
<u>Supplemental Benefits:</u>			
• Dental	\$60	1.0%	1.0%
• Vision	\$10	1.0%	1.0%

1. Continued

- 2018 expected administrative costs and profit margin are both 0.0%.
- The average risk score in 2016 for this plan is 1.0 and the expected 2018 risk score is 1.0.
- The rebate percentage based on the plan's star rating is 70%.
- There are no benefit changes for the plan between 2016 and 2018.
- The plan applies its rebate (if any) first to supplemental benefits and then to reduction of beneficiary premiums.
- The plan offers services in two counties, C and D, with the following projected enrollment and CMS benchmarks. Assume the benchmarks given are for a beneficiary with a risk score of 1.0.

County	2018 Projected Member Months	2018 CMS Benchmark PMPM
C	12,500	\$800
D	15,000	\$900

(b) (4 points)

- (3 points) Calculate the 2018 revenue PMPM that this plan should expect to receive from CMS for its projected population. Show your work.
- (1 point) Calculate the 2018 monthly beneficiary premium for this plan. Show your work.

***Questions 2 and 3 pertain to the case study.
Each question should be answered independently.***

- 2.** (8 points) Quantum offers individual and small group fully and self-insured policies. You develop the rate filings for these policies.
- (a) (2 points) Describe the regulations that apply to insurance companies as they relate to medical loss ratios (MLR) and the justification for each regulation.
 - (b) (2 points) List the ASOPs that you should consider when developing the rate filings and describe the reasons why each is relevant.
 - (c) (3 points) Calculate Quantum Health Insurance Company's Affordable Care Act (ACA) 2014 MLR prior to the credibility adjustment. Assume Quantum had \$300,000 of quality improvement and fraud reduction expenses. Show your work.
 - (d) (1 point) Describe plan consequences of an ACA MLR calculation.

*Questions 2 and 3 pertain to the case study.
Each question should be answered independently.*

3. (7 points)

- (a) (4 points) Evaluate the relative financial positions of Royale Life and Quantum Health using same-size-income statements. Show your work.
- (b) (1 point) Identify the common adjustments for revenue reporting used to normalize differences between same-size-income statements.
- (c) (2 points)
 - (i) (1 point) List the limitations in using same-size-income statements.
 - (ii) (1 point) Describe the primary approach insurers use to address these limitations.

4. (7 points) You are an actuary at ABC Insurance in charge of risk adjustment reporting for its ACA insurance plans.

You are given the following information for ABC's ACA plans as of 11/30/2016:

	Market Estimates	Issuer ABC Estimates
Estimated Premium (PMPM):	\$613.74	\$635.24
Estimated Plan Liability Risk Score:	1.68	1.75
Estimated Actuarial Value:	78%	72%
Estimated Geographic Cost Factor:	1.00	1.05
Estimated Allowable Rating Factor:	0.95	1.03
YTD Member Months	7,450,000	35,000
YTD Billable Member Months	7,353,000	34,000

After the end of 2016, the final results are as follows:

	Market Results	Issuer ABC Results
Premium (PMPM):	\$617.25	\$628.45
Plan Liability Risk Score:	1.87	1.80
Actuarial Value:	78%	72%
Geographic Cost Factor:	1.00	1.05
Allowable Rating Factor:	0.95	1.03
Induced Demand Factor:	1.08	1.06
Member Months	8,128,000	36,500
Billable Member Months	8,022,000	36,100

- (a) (3 points) Calculate the final 2016 transfer for ABC. Show your work.
- (b) (3 points) Write a memo to your manager explaining the differences between the final risk transfer and what would have been calculated as an interim estimate as of 11/30/2016. Show your work.
- (c) (1 point) ABC updated their 5-year pro forma forecast based on year end results.

Describe the impact of the final results to financial planning.

5. (9 points) You are reviewing rates from Sunny state for a Medicaid MCO currently only doing business in Windy state.

(a) (1 point) List the requirements for actuarially sound Medicaid rates.

The basis for rate evaluation is the experience from Windy state.

(b) (1 point) Identify other sources of data that the MCO could use and describe the advantages and disadvantages of each.

(c) (2 points) Describe adjustments required to the base experience from Windy state to make it appropriate for use in Sunny state.

Sunny state has a comprehensive list of beneficiary rate categories.

(d) (2 points) List characteristics used to classify members into different rate categories and describe the reasons why each would cause material differences in expected claims costs.

You were provided the following rates (PMPM) for 2018 with a target loss ratio of 90%:

- Child: \$213.84
- Adult: \$244.85
- Disabled: \$315.36

Upon reviewing the rates, you identify the following errors:

- Annual trend estimate of 3% instead of 6.5%
- All rates included pediatric dental claim cost of \$1.25 PMPM.
- Transportation cost was omitted from the rates.

Based on the state's experience, the transportation benefit claim cost in 2016 was \$3.55 PMPM.

(e) (3 points) Recalculate the rates. Show your work.

6. (5 points)

- (a) (2 points) Compare and contrast a Medicare Supplement plan and a Medicare Advantage (MA) plan for the following components:
- (i) Covered Benefits
 - (ii) Filing Process
 - (iii) Provider Contracting and Payment
- (b) (3 points) Identify the steps to calculate the payor's portion of each of the following claim types under Original FFS Medicare, Medicare Supplement Plan C and Medicare Advantage (MA):
- (i) An inpatient admission
 - (ii) A doctor's office visit
 - (iii) Filling a prescription at a pharmacy

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7. (12 points) You are the CFO for LLR Corporation and report to the CEO. You were provided the following data:

Category	2014	2015	2016
	\$	\$	\$
Admin costs	65,332	75,893	94,523
Dividends Paid	-	-	-
Equity	198,755	200,853	222,487
Inventory on Hand	253,110	276,458	298,789
Investment Income	1,874	1,459	1,773
Outstanding Debt	52,456	58,975	48,922
Payroll	353,896	417,543	520,001
Sales	426,897	533,897	667,371

Category	2014	2015	2016
Customers Served	107	158	192
Total Employees	5	6	8

- (a) (2 points) Calculate LLR's profit margin and sustainable growth rate for years-end 2015 and 2016. Show your work.
- (b) (2 points) List and describe the strategies you should discuss with the CEO to ensure financial success for LLR.
- (c) (1 point) Describe how the CEO's financial strategy decisions would change if the business were to enter lucrative overseas markets.
- (d) (3 points) The CEO believes sales will grow by 30% from 2016 to 2017.
- (i) (1 point) Identify the costs which have historically varied in proportion to sales.
- (ii) (2 points) Construct a percent-of-sales forecast for the 2017 financial elements based on data from 2014 through 2016. Show your work.
- (e) (2 points) Assume the CEO's sales prediction is correct, a 50% growth in total employees, and the current employees do not receive raises.

Calculate the maximum average salary for 2017 new hires using the percent-of-sales forecast from (d)(ii). Show your work.

7. Continued

- (f) (2 points) Net sales are reduced by \$20,000 in 2014 and \$10,000 in 2015 due to a reporting error.
 - (i) (1 point) Calculate the revised projected payroll in your 2017 percent-of-sales forecast. Show your work.
 - (ii) (1 point) Calculate the change in administrative costs necessary to maintain the previously projected profit level in part (d). Show your work.

8. (7 points) Company ABC offers a retiree health insurance plan to its employees. Full eligibility for the plan is age 60 and 20 years of service. ABC pays 100% of the costs for single coverage.

You are given the following:

Employee	Status	Age at hiring	Current Age	Expected mortality age
W	Working	25	60	70
X	Working	44	60	70
Y	Retired		65	70
Z	Retired		70	75

- Annual discount rate: 4%
- Annual trend: 8% decreasing by 0.5% per year until 5%
- Current pre-65 annual claim cost per capita: \$8,000
- Current post-65 annual claim cost per capita: \$2,000
- Retirement age is the later of age 65 or attainment of full eligibility
- All mortality is at the expected age
- No terminations other than mortality
- No plan assets
- No unamortized balances

- (a) (3 points) Calculate ABC's accumulated postretirement benefit obligation. Show your work.
- (b) (2 points) A change in expected claim costs resulted in the pre-65 claims cost increasing to \$12,000.

Calculate the net periodic postretirement benefit expense. Show your work.

- (c) (1 point) You discover an unrecognized prior service cost of \$6,800.

Design an amortization schedule for the unrecognized prior service cost based on the expected remaining years of service prior to full eligibility for the participating employees.

- (d) (1 point) Describe common underwriting considerations for retiree health insurance plans.

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

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