CSP-GH Model Solutions
Spring 2013

1. Learning Objectives:

4. Formulate and evaluate insurer claim reserving techniques.

Learning Outcomes:

(4b) Explain the limitations and applications of the various valuation methods:

- Lag Methods
- Tabular Methods
- Case Reserves
- Projection Methods
- Loss Ratio Methods

Sources:

GH-C102-07: Health Reserves

Commentary on Question:

This question was testing knowledge of a few different methods to determine reserves and under what business circumstances it would be appropriate to use them. Those candidates receiving maximum points described each of the methods accurately and listed a number of circumstances when the method was appropriate. Many candidates described the methods but only listed minimal cases when it was appropriate to use.

Solution:

Describe the following methods for determining claim reserves and when that method would be appropriate to use:

(a) Case Reserves

Commentary on Question:

Many candidates described the method although some were incomplete in their answer. Many noted it was appropriate when there are a small number of claims but did not list others correctly. LTD and LTC were common incorrect answers.

This method develops a reserve on a case by case basis by estimating the ultimate payment on each claim and subtracting amounts already paid.

It is appropriate when:

- Volume of claims is small enough to make work practical
- There is an accurate and complete inventory of reported claims

1. Continued

- Ultimate paid claims are easily estimated and don't vary widely such as STD, litigation claims, or large medical claims

(b) Projection Method

Commentary on Question:
Most candidates gave the basic description although some forgot the claims should be projected/trended while the exposures should be the actual amount in the period. Many listed just one or two of the cases where appropriate.

This method develops a reserve by taking a projected or trended PMPM or claims cost per unit, multiplying it by the number of exposures in the period to get total incurred claims, and then subtracting known paid claims.
It is appropriate when:

- Volume of data or incidence of claims is insufficient for other types of reserve methods
- The data is immature or not reliable; such as new business
- Validation or cross-check of reasonableness of other methods
- Used for most recent months of the development method which are not yet credible

(c) Development Method

Commentary on Question:
Candidates generally performed best on this part of the question. Many listed the steps of the method and multiple attributes of coverages it worked well for.

This method assumes historical incurred and paid lag patterns continue. Past claims data can be organized into triangles by incurred and paid dates. Then calculate cumulative incurred and paid by month. Age-to-Age development factors are computed as a ratio of past cumulative claims. These can be applied to paid-to-date totals for each incurral period to estimate expected ultimate claims. Subtracting known claims leaves the reserve.
It is appropriate when:

- Ability to accurately record incurred and paid date for each claim to develop a lag pattern
- Lag patterns are fairly consistent
- Incurred periods have relatively short duration relative to ultimate run-out; long durations create issues with operational changes or inflation
- Sufficient amount of business is available in each cell to obtain credible, stable results; can only combine similar lines of business
- Earned premiums or exposed contracts are available to assist with smoothing

2. Learning Objectives:

7. Integrate reinsurance arrangements with overall financial strategy of company plan/sponsor.

Learning Outcomes:

(7c) Assess the financial impact reinsurance has on the ceding company and reinsurance company in a given scenario.

Sources:

The Handbook of Employee Benefits, Rosenbloom, J.S., Seventh Edition, 2011

- Chapter 29, Funding Health Benefit Plans: Insured Arrangements, pgs 784 – 785, 788 and 801

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a) List the factors to consider when determining the total cost of an insured risk.

Commentary on Question:

Candidates generally did not do very well on this question; many put down characteristics of the insured which might influence their morbidity. Points earned were generally in the Administrative charges section.

The factors to consider when determining the total cost of an insured group including the following:

- Paid Claims – the total benefits paid to an insured group during the policy period.
- Reserves – the outstanding liability to pay future benefits for losses incurred during the policy period
- Other claim charges
  - Extended liability coverage
  - Cost for conversion to an individual policy
- Administrative charges
  - Commissions
  - Premium tax
  - Risk charge and underwriting margin
  - Claims administrative expenses
  - Other administrative expenses
  - Profit and surplus

2. Continued

(b) List the alternative funding arrangements employers may consider to reduce total plan costs.

Commentary on Question:
Candidates generally were able to come up with at least some relevant points. Full credit was given to those candidates that were able to categorize funding arrangements into three categories: i) arrangements that share year-end financial results ii) arrangements that minimize the plan assets by the insurer and iii) arrangements that minimize the premiums made.

Funding arrangement employers may consider to reduce the total plan costs include the following:

- Funding arrangements that share year-end plan financial results
  - Participating arrangement
  - Experience-rated arrangement
- Funding arrangements that minimize the plan assets held by the insurer
  - Deferred premium arrangement
  - Annual retrospective premium arrangement
  - Terminal retrospective premium arrangement
  - Extended plan-year accounting
  - Exclusion of waiver of premium provision for life insurance
- Funding arrangements that minimize the premium payments made during the year
  - Claims-plus arrangement
  - Partial self-funding arrangement
  - Large deductible arrangement
  - Minimum premium arrangement

(c) Calculate the required premium for the group. Show your work.

Commentary on Question:
Candidates did well on this part of the question and earned the majority of the allotted points. Many candidates did not calculate the incurred claims to derive the underwriting margin; a considerable number of candidates added the administrative cost by applying a 15% factor as opposed to dividing by 85% to the required premium less administrative cost.

Required premium = (expected paid claims) + (reserve adjustment) + (underwriting margin) + (pooling charge) + (administrative expense)

(Expected paid claims) = (five year actual paid claims * credibility factor) + (expected annual losses)* (1 – credibility factor) = ($1,850,000 * 65%) + ($1,500,000 * 35%) = $1,727,500

2. Continued

Incurred Claims = (expected paid claims) + (reserve adjustment) = $1,727,500 + $25,000 = $1,752,500

Underwriting Margin = (incurred claims) * 10% = $175,250

Expected premium (less administrative charge) = (incurred claims) + (underwriting margin) + (pooling charge) = $1,752,500 + $175,250 + $45,000 = $1,972,750

Required Premium = Expected premium (less administrative charge) / (1 – 15%) = $2,320,882

(d) Describe the possible strategies to reduce your quote if the premium calculated in part (c) is determined to be uncompetitive.

Commentary on Question:
Many candidates considered reducing administrative costs and underwriting margin, while reviewing large claims in the experience and the reserve assumptions used came up less often.

Possible strategies to reduce the quote if the premium calculated in part (c) is determined to be uncompetitive include the following:

- Reduce the credibility given to the actual claim experience. The manual rate is lower than the rate calculated using the actual claim experience.
- Examine ways to reduce the administrative costs.
- Review and consider truncating large claims; large claims may be skewing the actual results.
- Review the reserve adjustment and consider removing excess margins, if appropriate, from the reserve calculation.
- Reduce the underwriting margin, if the margin is excessive.

3. Learning Objectives:

5. Formulate and evaluate insurer reserving techniques for other liabilities.

Learning Outcomes:

(5a) Describe different types of reserves and explain when each is required:

- Deficiency reserves
- Active life reserves
- Premium reserves
- Deferred acquisition costs
- Claim administration expense reserves
- Calculate the reserves given data

Sources:

GH-C102-07: Health Reserves pg 43-52

U.S. GAAP for Life Insurers, Herget, T., Second Edition, 2006

- Chapter 10, Individual Health Insurance pg. 331-335
- Chapter 12, Group Insurance pg. 384-389

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a) Describe how changes in an insurance carrier's mix of business by segment impacts the amount of the following types of reserves:

(i) Premium Deficiency Reserves (PDR)

(ii) Active Life Reserves (ALR)

Commentary on Question:

Some candidates wrote about policy grouping requirements, which did not answer the question.

Many candidates used general terms like 'risky' or 'unhealthy' to describe mix of business, rather than make specific comparisons of business segments like issue-age rated, guaranteed issue, or long contract policies.

(i) PDR is driven by the timing and ability of premium adjustments creating a deficiency between future claim and expense liabilities and future premiums and current reserves and when this deficiency can be ended.

3. Continued

Group insurance with longer contract terms and rate guarantees increase the likelihood and size of the PDR. Policies with annual rates and no premium guarantees will not be impacted by shifts and far less likely to require a PDR.

If a carrier will vary contract terms for larger group customers, than an increase in that business will increase volatility and size of the PDR.

PDR will also be likely if the carrier locks in group pricing earlier than individual pricing.

(ii) ALR consists of unearned premium reserve and contract reserves. Contract reserves being required when present value of future benefits exceed present value of future net premium at any time in the expected life of the policy. The purpose of the contract reserves is to cover a future deficiency in premium.

ALR is not likely on group business since UW is limited and groups are fairly homogeneous.

ALR should be held for individual policies that are issue-age rated and are underwritten, and generally not required for individual policies that are attained-age rated and not underwritten.

Increasing individual business is expected to increase the ALR but also result in lower "initial" medical costs.

(b)

(i) List types of non-claims reserves other than PDR and ALR.

(ii) Explain when each type of reserve is required.

(iii) Briefly explain how each type of reserve is calculated.

Commentary on Question:
Some candidates wrote about claims reserves, which did not answer the question. The candidates who scored highest on this question wrote brief but meaningful descriptions of requirements and calculation methods for several very different types of reserves.

3. Continued

(i)

- Unearned Premium Reserves
- Maintenance Expense Reserves
- Acquisition Expense Reserves or DAC
- Stop-Loss Reinsurance
- Experience Rating Refunds
- Provider Liabilities (Withholds, Bonuses)

(ii)

UPR – required for premium due and paid, but not earned

MAE – required for administrative expenses associated with pre-funded future claims

DAC – set up to spread initial cost of acquiring policy over the policy's lifetime

Stop-Loss – sale of stop-loss and future premiums less than expected claims

Experience Rating Refunds – needed to cover expected refunds required by (group) contracts

Provider Liabilities – contingent payments required to cover risk that provider will not provide contracted services

(iii)

UPR – prorate premium paid by portion of period not yet elapsed

MAE – apply a percentage factor to future claim liabilities

DAC – perform gross premium valuation or use similar method to allocate acquisition costs over expected policy lifetime

Stop-Loss – similar to other reserving methods

Experience Rated Refunds – estimate claims experience (including IBNR) vs. targets

Provider Liabilities – estimate liabilities based on contract terms, claims experience, and results for bonuses and incentive metrics

4. Learning Objectives:

6. Evaluate financial performance measures for insurers for both short-term and long-term products.

Learning Outcomes:

(6a) Assess key financial measures used by various entities (insurers, HMOs, provider-owned plans).

(6b) Project financial outcomes and recommend strategy to management to achieve financial goals.

Sources:

Analysis for Financial Management, Higgins, Tenth Edition, 2012

- Chapter 4, Managing Growth

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a) Describe approaches to manage the situation when actual growth exceeds sustainable growth.

Commentary on Question:

Many candidates provided a list of possible approaches, however they did not receive full credit because they did not provide detail describing these approaches or why they are viable options.

When actual growth exceeds sustainable growth, the company needs to slow growth or gain additional funds. Some approaches to do so include:

Sell new equity – Selling equity is a source of funds to finance further growth. However, this option is often times unattractive to companies and is not even an option for others.

Increase financial leverage – This increases the amount of debt the company takes on. However, there is a limit on the level of debt a company can maintain.

Reduce the dividend payout – This increases the proportion of earnings retained in the business. The potential negative impact to the share price should be considered with this option.

Prune away marginal activities – The sale of these businesses will generate funds as well as slow overall growth. Any activities that are part of the core business should not be considered for sale.

4. Continued

Outsource some production costs – This will free up assets that are otherwise tied up in the business.

Increase prices – Increasing prices will potentially slow growth

Merge with another company – The merger should be a profitable investment with a mature company

(b) Describe approaches to manage the situation when actual growth is below sustainable growth.

If actual growth is below sustainable growth, the company can choose to ignore the problem and continue investing in the core business despite the lack of attractive returns. However, this may make the company susceptible to raiders.

Another option would be to return additional money to shareholders in the form of increasing dividends or repurchasing shares.

The company could also opt to buy additional growth in the form of acquiring another business.

(c) Calculate the maximum dividend rate that can be paid out in order to maintain a sustainable growth rate. Show your work.

Commentary on Question:
Many candidates performed well on this question; however, some did calculate the maximum dividend rather than the dividend rate.

g* = expected growth rate in sales = 20%

g* = R*Earnings/Equity at beginning of year

R = 1 – dividend rate

Earnings/Equity at beginning of year = 150/500

20% = R * 150/500
R = 500/150 * 20% = 66.67%

Dividend rate = 1 – 66.67% = 33.33%

5. Learning Objectives:

2. Typical markets: Understands customer segments and how products are marketed to each.

Learning Outcomes:

(2b) Describe common marketing channel to each major customer segment.

Sources:

Group Insurance, Bluhm, W.F., Fifth Edition, 2007, Chapter 1, the Group Insurance Marketplace

GH-C135-13: Essentials of Managed Health Care, Kongstvedt, P.R., Sixth Edition 2013, Chapter 16

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a) Describe the group market in relation to:

(i) Buyers

(ii) Rating characteristics

(iii) Sales process

Commentary on Question:

Most candidates approached this from a list perspective. They missed points by not having some of the associated basic narrative.

(i) Groups are connected by common characteristics. The entire group of individuals is considered in evaluating the risk. This is a more efficient means of sales with administrative expenses typically lower per insured. Insurers must guard against anti-selection. Insurers don't make sale to individual, only to sponsor decision maker.

Group categories:

- Employees of single employer
- Employees of group of employers
- Debtors to a common creditor
- Members of professional or trade association
- Labor unions
- Individuals under a government plan
- Government also provides group insurance
    - Medicare
    - Medicaid

5. Continued

Multiple distribution channels may be used (usually ties to group size)

- Consultants
- Brokers
- Agents
- Direct sales

(ii) Allowed rating characteristics are connected to group size. Groups with 50 or less eligible employees are limited on which characteristics can be used. Typical categories of rating characteristic:

- Demographic factors (Age, Gender)
- Area
- Occupation
- Employer contribution
- Employee participation
- Prior claims experience
- Benefit design
- Family composition
- Group size (credibility)

(iii) The sales process can be categorized as follows:

- Lead Generation
- Prospecting
- Rating and Underwriting
- Quoting
- First Sale to Employer
- Case Installation
- Second Sale to Employee
- Enrollment

(b) Describe benefit design considerations required by the Affordable Care Act (ACA) for 2014 small group products.

Commentary on Question:
Most candidates answered with simple lists failing to describe, which cost them points.

Benefits are categorized by "Metallic" levels based on cost sharing. No products can be sold that have an actuarial value more than +/- 2% of one of the categories.

Categories:

Platinum (Cost sharing = 10%)
Gold (Cost sharing = 20%)

5. Continued

Silver (Cost sharing = 30%)
Bronze (Cost sharing = 40%)

Basic provisions of ACA act:

- No pre-existing condition exclusions
- No rescissions except fraud or non-payment of premium
- No lifetime or annual limits
- Extension of dependent coverage to age 26
- Guarantee issue

Essential benefits must be included in all products.

- Ambulatory
- Emergency
- Hospitalization
- Maternity
- Pediatric services
- Preventive (no cost sharing by enrollee)
- Pharmacy
- Laboratory
- Mental health
- Chronic disease management

6. Learning Objectives:

13. Demonstrate an understanding of the accounting requirements and methodology regarding retiree life and health benefits.

Learning Outcomes:

(13b) Project future retiree benefit costs.

Sources:

Fundamentals of Retiree Group Benefits, Yamamoto, 2006

- Chapter 7, U.S. Accounting

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a) Describe the components of the Net Periodic Postretirement Benefit Cost (NPPBC).

Commentary on Question:

Most students named the more basic component parts of the formula (Service Cost, Interest Cost and Expected return on plan assets.) Fewer indicated Amortization of transition obligation and Net amortization and deferral. Only about half of the candidates described the components as requested.

NPPBC represents the cost of providing postretirement benefits attributed to the current accounting period.

- Service Cost – Benefits that accrue for the period covered by the P&L statement.
- Interest Cost - interest on various cashflow items including the service cost and the future benefit
- Expected return on plan assets - it is the expected after-tax return on fair value of assets
- Amortization of the transition obligation - at initial adoption of FAS 106 - amortization of accrued obligation
- Net amortization and deferral - amortization of prior service costs (i.e. plan amendments) and gains/losses

(b) Calculate the Expected Postretirement Benefit Obligation (EPBO), Accumulated Postretirement Benefit Obligation (APBO) and Service Cost (SC).

Commentary on Question:

This question was generally well-answered. A consistent error in candidates' answers was using the FV of retirement benefits amount rather than using the EPBO in the APBO and Service Cost calculations. Some candidates only wrote formulas and didn't do the actual calculations.

6. Continued

	Total	Employee 1	Employee 2	Employee 3
Age at Hire		25	30	40
Attained Age		45	40	50
Assumed Retirement Age		60	55	65
Future value of retirement benefits		$50,000	$75,000	$125,000
EPBO		$50,000 x V^{15}	$75,000 x V^{15}	$125,000 x V^{15}
		=$50,000 x .481	=$75,000 x .481	=$125,000 x .481
	$120,250	=$24,050	=$36,075	=$60,125
APBO		EPBO x 20/35	EPBO x 10/25	EPBO x 10/25
		=$24,050 x 20/35	=$36,075 x 10/25	=$60,125 x 10/25
	$52,223	= $13,742.86	=$14,430	=$24,050
Service Cost		EPBO x 1/35	EPBO x 1/25	EPBO x 1/25
		=$24,050 x 1/35	=$36,075 x 1/25	=$60,125 x 1/25
	$4,535	=$687.14	=$1,443	=$2,405

7. Learning Objectives:

11. Prepare a Statement of Actuarial Opinion (SAO) for selected health matters.

13. Demonstrate an understanding of the accounting requirements and methodology regarding retiree life and health benefits.

Learning Outcomes:

(11a) Describe the U.S. Qualifications Standards and Statements of Actuarial Opinion (SAOs) as outlined in the Standard.

Sources:

AAA Practice Note, Actuarial Equivalence for Prescription Drug Plans and Medicare Advantage Prescription Drug Plans under the Medicare Drug Programs, March 2008
http://www.actuary.org/pdf/practnotes/health_partd_mar08.pdf

Commentary on Question:

Many candidates were able to create lists to answer all four parts of the question. Strong candidates differentiated themselves by demonstrating an understanding of the underlying concepts through explanations of the components of their lists. All candidates would benefit from a thorough review of Qualification Standards – while responses to this section were adequate, few demonstrated a thorough understanding of the need for *relevant* education and experience in issuing an SAO.

Solution:

(a) Describe the difference between the following:

(i) A standard plan design with actuarial equivalent cost sharing

(ii) A basic alternative plan design

(iii) An enhanced alternative plan design

Commentary on Question:

Note that basic member premium is not necessarily the same as the standard plan. It can be different because of induced utilization. Many candidates inadequately explained the differences in premiums.

(i) A standard plan design with actuarial equivalent sharing:
- Same deductible and ICL as the Part D standard plan
- Actuarial equivalent to standard plan design
- Generates only a basic member premium

(ii) A basic alternative plan design:
- Allows for variation in deductible and ICL
- Actuarial equivalent to standard plan design
- Generates only a basic member premium

7. Continued

(iii)An enhanced alternative plan design
- Allows for variation in deductible and ICL
- Greater in actuarial value than standard plan design
- Generates a basic and supplemental premium

(b) Explain the testing of actuarial equivalent cost sharing.

Commentary on Question:
Candidates did well on describing what needed to be tested, but few described where and how the testing was performed. Very few candidates earned credit by describing Worksheets 4 and 6.

There are two tests:
- Cost sharing between the deductible and ICL is equivalent to Part D standard plan (Plan pays 25%)
- Cost sharing above the catastrophic limit is equivalent to Part D standard plan (Member pays > of $2.25/$5.60 for generic/multi-source brand or 5% of the cost)

Utilization and expenditure data for modeled population are entered into Worksheet 6.

Test is performed on Worksheet 4 of the bid template.

(c) Explain the testing of alternative coverages.

Commentary on Question:
Strongest papers listed and explained the 5 equivalence tests.

There are 5 equivalence tests that must be met:
- Total covered costs for the alternative plan >= standard plan
  - Part D covered drugs + non pharmacy expenses + gain/loss margin + federal reinsurance
- Unsubsidized value of the alternative plan >= standard plan
  - Part D covered drugs only
  - Before Federal reinsurance benefit
- Average plan liability at the ICL for the alternative plan >= standard plan
- The deductible for the alternative plan <= standard plan
- Average member cost sharing above catastrophic threshold<=standard plan
  - > of $2.25/$5.60 for generic/multi-source brand or 5% of the cost

7. Continued

(d) List the qualifications an actuary needs to render a certification of actuarial equivalence for Part D bids.

Commentary on Question:
Candidates did adequately overall. The strongest papers explain actuarial equivalence is a statement of actuarial opinion since this is the basis for application of qualification standards. Some candidates failed to indicate that experience must be relevant to the subject of the SAO. Few candidates referred to ASOPs.

- A certification of actuarial equivalence is a Statement of Actuarial Opinion, thus actuary must meet qualification standards:
  - Basic education
  - Relevant experience
  - Continuing education
- Preferable for work experience to include health benefit system pricing and analysis
- Consider relevant ASOPs

8. Learning Objectives:

13. Demonstrate an understanding of the accounting requirements and methodology regarding retiree life and health benefits.

Learning Outcomes:

Sources:
Fundamentals of Retiree Group Benefits, Yamamoto, 2006

- Chapter 7, U.S. Accounting
- Chapter 8, Other Accounting

Commentary on Question:
This question is testing the candidate's knowledge of accounting for a plan change in both the United States and under International Accounting Standards. Note that candidates were given credit if they showed full detail in one part and then listed the specific differences or similarities between the two.

A common mistake was that liabilities were not adjusted for the plan change when calculating interest cost. Candidates who made computational errors often missed easy points because they did not provide interim calculation results. Some students were confused between the service cost and amortization of prior service costs. This was critical to part (b), because the prior service cost is recognized immediately under IAS 19 while the service cost treatment is the same under both accounting standards.

Solution:
(a) Calculate the net periodic benefit cost for XYZ Company after the above change under U.S. GAAP. Show your work.

Service cost
300,000 + 50,000
350,000

Interest cost
Liability * discount rate
34,260,000 + 2,000,000
36,260,000
* 5%
1,813,000
Service cost * discount rate
300,000 + 50,000
350,000
* 5%
17,500

8. Continued

Less expected benefit disbursements * discount rate *
1/2
-2,340,000 * 5% * 1/2
-58,500
1,772,000

EROA is zero since there are no assets

Amortization of ITO is zero since there is no more
unrec ITO

Amortization of PSC
Unrecognized PSC / AFS
2,000,000 - unrec PSC
10 - AFS
200,000

Amortization of gains and losses
Unrecognized gains and losses outside of 10%
corridor (greater of assets and liabilities) / average
service to retirement age
5,400,000 - unrec loss
3,626,000 - 10% of liability
12 - amortization period
147,833

Total cost = 2,469,833

(b) Calculate the net periodic benefit cost for XYZ Company after the above change under IAS 19. Show your work.

Service cost
300,000 + 50,000
350,000

Interest cost
Liability * discount rate
34,260,000 + 2,000,000
36,260,000
* 5%
1,813,000

8. Continued

Service cost * discount rate
300,000 + 50,000
350,000
* 5%
17,500
Less expected benefit disbursements * discount rate * 1/2
-2,340,000 * 5% *
1/2
-58,500
1,772,000

EROA is zero since there are no assets

Amortization of ITO is zero

Amortization of PSC
Unrecognized PSC / AFS
2,000,000 - unrec PSC
1 - AFS; or "change is recognized immediately"
2,000,000

Amortization of gains and losses
Unrecognized gains and losses outside of 10% corridor (greater of assets and liabilities) / average service to retirement age
5,400,000 - unrec loss
3,626,000 - 10% of liability
12 - amortization period
147,833

Total cost = 4,269,833

9. Learning Objectives:

11. Prepare a Statement of Actuarial Opinion (SAO) for selected health matters.

Learning Outcomes:

(11a) Describe the U.S. Qualifications Standards and Statements of Actuarial Opinion (SAOs) as outlined in the Standard.

Sources:

ASOP 23, Data Quality

ASOP 41, Actuarial Communications

Commentary on Question:

The best way to answer this question is to cognitively assess how the specific provisions of ASOP 23 and (to a lesser extent) ASOP 41 apply to the choice of firms A & B. Many answered this question with simple lists, but many candidates took the cognitive step of comparing these provisions between the two proposals. Some answers suggested "national literature" on health care reform is more reliable because it is published…is it? Some people did not understand that there is a difference between following ASOPs in both proposals…public health experts probably do not even know the term ASOP, thus subjecting *you* to more documentation work in relying upon their results. The answer shown in the first paragraph would get full credit, but certain nuances are listed at the bottom because they also received credit.

Solution:

Compare and contrast how data quality concerns between the two different proposals should be considered in meeting your actuarial standards of practice requirements.

Should consider which proposals use of data is most appropriate to your own ultimate objective. The enrollment and cost impact of the ACA is not known …the influx of people is not reflected in past data for either proposal, so the sources and methods and needed adjustments should be reviewed for reasonability and consistency. Consulting Firm A may be aware of societal behavioral studies that fill in gaps of knowledge that traditional actuarial methods cannot address. In the end, *you* will have to disclose your feelings on the data quality. Documentation from consulting firm B should be much more in line with your final documentation needs, since they are actuaries and must follow the same ASOPs that you. Consulting Firm B is also more likely to understand what aspects of the ACA are more important to you, since they are actuaries. Consulting firm B does not have to follow ASOPs, meaning you may have additional work on your part to include and find out about disclosures that you may ultimately need to make. Data is sent to Firm B from *you*, so *you* should check that you send them good data, as they are not required to audit the data. They can rely on data, as can you, unless you know of material defects. All material defects should be disclosed, and likely consequences of these defects and the adjustments to correct for them should be documented as well.

9. Continued

Any limitations on use of the data, or the limitations of the use of the findings, should be documented in your own deliverables, as well as Company B's deliverable, since they are subject to ASOPs.

Consider the cost between the proposals, and other possible alternatives.

You will have to disclose reliance on these other firms.

There may be bias to be concerned about – such as in numerical data, in national literature, in either consultants' politics stance on the ACA.

Is the national literature outdated?

Is it a problem that national literature will be used when your business is in specific states?

10. Learning Objectives:

12. Understand an actuarial appraisal.

Learning Outcomes:

(12b) Describe components of an actuarial appraisal.

(12c) Describe an approach for preparing an actuarial appraisal.

(12d) Describe risks associated with interpreting an actuarial appraisal.

Sources:

GH-C103-07: The Actuary and Health Insurance Mergers and Acquisitions

GH-C104-07: Mergers and acquisitions, Toole and Herget

- Chapter 4, Valuation Techniques

RSA, Vol. 30, No. 2 Session 15 PD, Actuarial Appraisals – Process and Issues
http://www.soa.org/library/proceedings/record-of-the-society-of-actuaries/2000-09/2004/june/rsa04v30n215pd.pdf

Commentary on Question:

This question was asking candidates to compare two health insurance companies as a potential target for an acquisition, based on their finances. Based on the results, the question also asked candidates to recommend which one of the two companies should be acquired.

Solution:

(a) List the financing sources available to Copperfield to obtain the capital needed to purchase one of those companies.

Commentary on Question:
In order to get the maximum points allowed on this question, the candidates needed to list the major items of the model solution.
Most candidates did well on that part.

- Issue stocks
- Issue debt
- Loan from banks
- Sell non-core assets or divesting
- Reinsurers

(b) Determine the value of future business capacity of CITR and 100YOS as of December 31, 2011 using the target price. Show your work.

10. Continued

Commentary on Question:
Most candidates got full credit for (1) the Actuarial Appraisal Value and (2) the Value of Inforce Business, but only some got the full credits for (1) the Adjusted Book Value and (2) the Actuarial Appraisal Value.

CITR:

Actuarial Appraisal Value
= Market Capitalization
= Shares Outstanding x Price per share
= 45,000,000 x $50.00
= 2,250,000,000

Adjusted Book Value (Net Worth)
= Total Shareholders' Equity
= 2,622,000,000 (Already given in the case study)

Value of Inforce Business = 2011 Net Income x 2
=577,000,000 x 2
= 1,154,000,000

Actuarial Appraisal Value
= Adjusted Book value (Net Worth) + Value of Inforce Business
+ Value of Future Business Capacity
==> Value of Future Business Capacity = Actuarial Appraisal Value
- Adjusted Book value (net worth) - Value of Inforce Business
= 2,250,000,000 - 2,622,000,000 - 1,154,000,000
= -1,526,000,000

100YOS:

Actuarial Appraisal Value
= Market Capitalization = Shares Outstanding x Price per share
= 60,000,000 x $35.00
= 2,100,000,000

Adjusted Book value (Net Worth)
= Total Shareholders' Equity
= 1,183,000,000 (Already given in the case study)

10. Continued

Value of Inforce Business
= 2011 Net Income x 2
=97,000,000 x 7
= 679,000,000

Actuarial Appraisal Value
= Adjusted Book value (Net Worth) + Value of Inforce Business
+ Value of future Business Capacity
==> Value of Future Business Capacity = Actuarial Appraisal Value
- Adjusted Book value (net worth) - Value of Inforce Business
= 2,100,000,000 - 1,183,000,000 - 679,000,000
= 238,000,000

(c) List reasons why your actuarial appraisal value might differ from the point-of-view of another purchaser.

Commentary on Question:
In order to get the maximum points allowed on this question, the candidates needed to list the major items of the model solution.
Most candidates did well on that part.

The following assumptions may differ from potential buyer's perspective:

- Discount rate
- Taxation
- Reserves and Risk-Based-Capital
- Economies of scale and Synergies
- Diversification of lines of business
- Distribution channels
- Geographic location
- Management views regarding:
  - Integration of acquired business into existing operations
  - New business growth

(d) Describe the Capital Asset Pricing Model (CAPM) and calculate the expected rate of return on the acquisition of CITR and 100YOS. Show your work.

Commentary on Question:
In order to get the maximum points allowed on this question, the candidates needed to describe the model and use it to develop correct calculations.
Most candidates got full credit for calculating the rate of return for both companies, but only some got full credit for describing the CAPM.

10. Continued

Capital Asset Pricing Model (CAPM)

- $r = r_f + B (r_m - r_f)$
- Use the Weighted Average Cost of Capital (WACC) as the discount rate
  - $WACC = [D/(D+E)]*r^D + [E/(D+E)]*[r_f + B (r_m - r_f)]$
- A company is creating shareholder value if an acquisition provides a positive value discounted at the WACC
- A company is destroying shareholder value if an acquisition provides a negative value discounted at the WACC

CITR:

$r = r_f + B (r_m - r_f)$
$= 3.00\% + 1.1 \times (5.00\% - 3.00\%)$
$= 5.20\ \%$

100YOS:

$r = r_f + B (r_m - r_f)$
$= 3.00\% + 1.2 \times (5.00\% - 3.00\%)$
$= 5.40\ \%$

(e) Describe the approaches, other than CAPM, that are available to determine the discount rate used in your actuarial appraisal.

Commentary on Question:
In order to get the maximum points allowed on this question, the candidates needed to list the major items of the model solution.
Candidates that did not score well on this question are those that did not describe all three approaches mentioned below.

1. Can look at the internal hurdle rate used for pricing:
   - Used as minimum benchmarks for pricing internally new business or for pricing acquisitions;
   - May vary by LOB based on the perceived risk or market conditions;
   - Both current hurdle rates and long-term targets may be used to establish a minimum discount rate to price an acquisition.

2. Can look at the Weighted Average Cost of Capital (WACC):
   - A potential buyer may have a specific cost of funds for a given transaction, which will then be the appropriate discount rate for its analysis;
   - The overall WACC of the financing (including the expected return on the equity) equals the discount rate to price the transaction;

10. Continued

- The company may temporarily have an advantage in pursuing acquisitions until the excess capital is fully used.

3. Can look at the discount rates used in recent M&A transactions:
   - Based on actual or potential M&A transactions in the market place;
   - Investment bankers, actuaries, and other advisors generally have a sense of current market conditions;
   - Discount rates reflect the nature of buyers, the cost of financing and the type of business being sold.

(f) Recommend whether CITR or 100YOS should be acquired, and if so, which one. Justify your recommendation.

Commentary on Question:
In order to get the maximum points allowed on this question, the candidates needed to recommend 100YOS and mention at least one reason mentioned below. Candidates that did not score well on this question are (1) those that recommended CITR should be acquired rather than 100YOS and (2) those that did recommend 100YOS, but did not mention any one of the reasons listed below.

100YOS should be acquired for the following reasons:

1. The expected rate of return is greater for the acquisition of 100YOS (5.40 %) than for the acquisition of CITR (5.20%);
2. According to "The Prince Investment Advisors LLC", shares of 100YOS are more undervalued (30.0 %) than those of CITR (16.7 %); and
3. The value of future business capacity of CITR is negative meaning that future business is sold with a negative profit margin.

11. Learning Objectives:

6. Evaluate financial performance measures for insurers for both short-term and long-term products.

Learning Outcomes:

(6a) Assess key financial measures used by various entities (insurers, HMOs, provider-owned plans).

(6b) Project financial outcomes and recommend strategy to management to achieve financial goals.

Sources:

Analysis for Financial Management, Higgins, Tenth Edition, 2012

- Chapter 2, Evaluating Financial Performance
- Chapter 3, Planning Future Financial Performance

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a) Calculate the Return on Equity (ROE), Return on Assets (ROA), and Return on Invested Capital (ROIC) for LOG and for C&P in 2011. Show your work.

Commentary on Question:

Most candidates did well on ROE and ROA. Some candidates had trouble pulling the values from the case study for calculating ROIC.

ROE = Net income/ Shareholder's equity
ROA = Net income / Assets
ROIC = [EBIT (1 - Tax Rate)] / [Interest-Bearing Debt + Equity]

	Leaves of Grass	Crime and Punishment Company
ROE:	68 / 1793 = 3.79%	699 / 2196 = 31.83%
ROA:	68 / 9425 = 0.72%	699 / 4829 = 14.48%
ROIC:	[104+30]*[1-.35]/[1853+4582+1793] = 1.06%	[1075+34]*[1-.35]/[575+1403+2196] = 17.27%

11. Continued

(b)

(i) Describe the components of ROE.

(ii) List the limitations in using ROE as a measure of financial performance.

Determine which company appears to be in a better position, based on your answer to part (a). Explain your answer.

(i) a. Profit Margin
- Measures the fraction of each dollar of sales that becomes profit on the income statement

b. Asset turnover
- Measures sales generated per dollar of assets

c. Financial leverage
- The amount of equity used to finance the assets

(ii) a. Timing Problem
- ROE is backward looking and focused on a single year

b. Risk Problem
- ROE does not provide any insight to the amount of risk a company has taken

c. Value Problem
- ROE measures the return on shareholders' investment using the book value of equity rather than then market value

(iii) Crime and Punishment is more preferable due to higher ROE and ROA.

(c) Describe techniques for dealing with uncertainty in forecasts.

Commentary on Question:
Some candidates listed the techniques but didn't provide enough details on how to perform the analysis.

a. Sensitivity analysis
- Helps to answer "what if" questions
- Involves systematically changing one of the assumptions and watching how the forecast responds

b. Scenario analysis
- Looks at how a number of assumptions might change in response to a particular event

c. Simulation
- Computer-assisted extension of sensitivity analysis
- Assign a probability distribution to each uncertain element in the forecast

12. Learning Objectives:

6. Evaluate financial performance measures for insurers for both short-term and long-term products.

10. Evaluate the risks associated with health insurance.

Learning Outcomes:

(6a) Assess key financial measures used by various entities (insurers, HMOs, provider-owned plans).

(6b) Project financial outcomes and recommend strategy to management to achieve financial goals.

(10a) Evaluate the risk associated with a specific product, including:

- Identify risks inherent in the product
- Describe the types of analysis used to measure the risk
- Discuss methods for mitigating the risks

Sources:

Analysis for Financial Management, Higgins, Tenth Edition, 2012

- Chapter 8, Risk Analysis in Investment Decisions

Enterprise Risk Management: From Incentives to Controls, Lam, 2003

- Chapter 8, Risk Transfer

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a) Describe the advantages and disadvantages of ART.

Commentary on Question:

Most students were able to list some advantages and disadvantages. It was rare for students to fully describe the advantages and disadvantages with additional detail.

<u>Advantages</u>

1. Rationalization of risk transfer across organization
    a. Avoids traditional "silos"
2. Focus
    a. Most companies are not in the business of managing risks
    b. Allows companies to focus on their core operations
3. Customization
    a. ART can be company-specific and made to order, unlike traditional insurance
    b. Company is not obliged to purchase coverage that is not needed

12. Continued

4. Cost reduction and simplified administration
    a. Reduces paperwork and review of policies
    b. Can use natural hedges to reduce costs
5. Earnings Stability
    a. It would typically take many separate and costly hedges to achieve the same degree of homogenization in earnings that ART produces

Disadvantages

1. ART does not completely eliminate risks
2. ART may require a larger initial outlay in costs compared to traditional insurance
3. It may be difficult to reach agreement on terms and prices for ART products
4. Regulatory and accounting treatment of ART products is uncertain and may require additional legal expertise

(b)

(i) Calculate the cost of capital using Great Expectations 2011 financial data.

(ii) Analyze the ART strategy and explain what you would recommend to your boss.

Commentary on Question:
Candidate performance on part (i) was generally good and much better than part (ii). In part (i) some candidates assumed or calculated a market value of equity which was acceptable while others used the book value from the case study. Many candidates struggled with part (ii).

(i) Cost of Capital = [(1 - tax rate) * expected return on debt * amount of interest-bearing debt + expected return on equity * amount of equity] / [amount of interest-bearing debt + amount of equity]

= [(1 - 35%) * 5% * (820 + 6,616)+ 10% *20,148] / [(820 + 6,616) + 20,148]

= 8.2%

(ii) Without ART
Total Economic Capital = 30 + 40 + 50 – 20 = 100 million
Cost of Risk = 8.2% *100 million = $8.2 million

12. Continued

With ART
Total Economic Capital = (30 + 40 + 50 – 20) * 0.50 = 50 million
Cost of Risk = 8.2% *50 million = $4.1 million
Total Cost = $4.1 million + $5 million ART cost = $9.1 million

Recommend not pursing ART strategy since it increases cost by roughly $1 million.

13. Learning Objectives:

8. Evaluate the impact of taxation on company/plan sponsor financial management.

Learning Outcomes:

(8a) Assess the tax implications of benefit offerings from a plan sponsor perspective.

Sources:

The Handbook of Employee Benefits, Rosenbloom, J.S., Seventh Edition, 2011

- Chapter 25, Cafeteria Plan Design and Administration, pgs. 709 – 716 only

Commentary on Question:

Most candidates did well on part (a). They were able to describe the three tests required to be considered non-discriminatory. The candidates were not as proficient in explaining the consequences of not passing the non-discriminatory testing. In part (c) the comparison of the simple cafeteria plan and the traditional one is not affected by the ACA. Many candidates discussed requirements of medical plans under the ACA, which did not answer the question being asked.

Solution:

(a) Describe the tests a cafeteria plan is required to pass in order to be considered non-discriminatory.

For a cafeteria plan to be non-discriminatory it must pass three tests:

1. The Eligibility Test: The plan may not discriminate in favor of highly compensated individuals, and no employee is required to complete more than 3 years to participate.
2. The Contribution and Benefit Test: Plan must not be disproportionately selected by highly compensated employees, and similarly situated participants must be offered uniform employer contributions.
3. Key Employee Concentration Test: Non-taxable benefits to key employees can't exceed 25% of the aggregate benefits provided to employees. A Key employee is an officer with salary > $160,000, a 5% owner, or a 1% owner with salary >$150,000.

(b) Identify the consequences if the cafeteria plan does not pass the tests to be considered non-discriminatory.

The highly compensated employees will be taxed on their benefits, and the employer will have to pay payroll taxes. There is no tax impact to non-highly compensated employees.

13. Continued

(c) Identify the tradeoffs between offering a simple cafeteria plan under the Affordable Care Act (ACA) versus a traditional cafeteria plan.

A simple cafeteria plan has lower administrative costs and is not required to complete non-discriminatory testing like a traditional cafeteria plan. A simple cafeteria plan must cover all employees with more than 1,000 hours while a traditional plan can offer coverage to full time employees after 3 years of service

14. Learning Objectives:

3. Evaluate techniques for claims and disease management.

Learning Outcomes:

(3d) Describe operational issues in the development of a study including acceptable methods for dealing with the issues.

Sources:

Healthcare Risk adjustment and Predictive Modeling, Duncan, 2011

- Chapter 7, Introduction to Modeling

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a) Describe the ways to judge the quality of a model.

Commentary on Question:

Good candidates were able to identify the ways to judge the quality of a model and demonstrate a deeper understanding by elaborating and not simply listing.

- Parsimony – model should use as few variables as possible while still explaining variances
- Goodness of Fit – how well do explanatory variables explain variations in outcomes. Typically represented by R-squared statistics.
- Theoretical Consistency – Model variables should be reviewed for magnitude and sign of coefficients. Outcomes should be in line with analyst's prior knowledge.
- Predictive Power – Model should accurately predict outcomes. Model should be derived and tested on separate datasets.

(b) Compare the quality of the three models provided and recommend a model to use. Justify your answer.

Commentary on Question:

Good candidates were able to interpret the results of each model presented and apply the results to the indicators of model quality. Stronger candidates were able to interpret the qualities identified in part (a) with the models in the question and identify which model best fit each quality. Candidates were required to provide a recommendation and justify the answer.

Parsimony – Model A would be favored as it uses the fewest number of variables
Goodness of Fit – Use adjusted R-square to compare models. Adjusted R-square takes into consideration the number of variables used in the model. Model C would be favored as this model has the highest R-square value.

14. Continued

Theoretical Consistency – review the regression coefficients magnitude and sign. Model B does not make sense in that the coefficient on office visits is negative.
Predictive Power – Desire to minimize multi-collinearity. Use pair-wise correlation to test. Model C has fairly high multi-collinearity.
There was insufficient information to judge the models based on F-Test statistics or heteroscedasticity.

Based on the descriptions above, I would choose Model A as this is the simplest model with the fewest variables, yet a fairly high R-square value.

(c) Recommend changes you would make to the models to improve quality. Justify your answer

Commentary on Question:
Good candidates were able to identify insufficiencies in the models presented and offer solutions for improvement related strictly to the quality of the models. Multi-collinearity in Model C indicates that one of the variables could be dropped.

- Sample size of 100 is too small. Try increasing the sample size.
- Should consider models that deal with non-prior year data or multi-year data to address autocorrelation.
- To address heteroscedasticity, may consider transformations.

15. Learning Objectives:

3. Evaluate techniques for claims and disease management.

Learning Outcomes:

(3m) Analyze and use predictive models.

Sources:

Healthcare Risk Adjustment and Predictive Modeling, Duncan, 2011

- Chapter 14, Risk Adjustment in Medicare
- Chapter 15, Risk Adjustment and Health Care Reform: The Example of Massachusetts

Commentary on Question:

Most candidates did not answer the question as to why the programs were developed. For the compare and contrast most candidates only provided information about the MA risk adjustment program. To compare and contrast the programs, details needed to be provided about both programs in how they are similar and how they are different.

Solution:

(a) Describe why risk adjustment processes were put in place for the following programs:

(i) Medicare Advantage (MA)

(ii) Massachusetts Commonwealth Care Program (MCCP)

People choosing the MA plans are healthier and less costly to insure than the traditional Medicare Fee for Service. The Risk adjustment program was put in place to reimburse the plans for the risk they are actually assuming.

The MCCP risk adjustment program was established to reduce the potential anti-selection among carriers and to reimburse the plans for the actual risk they are assuming.

(b) Compare and contrast the MA and MCCP risk adjustment processes.

Both programs calculate risk scores at a member level utilizing a prospective method. Both programs utilize demographics and the member's location. For the MA program, additional factors considered are if the member is disabled, has ESRD, in a long term facility, or a new enrollee. For MCCP considers the plan the member is enrolled. MA uses Hierarchical condition categories (HCC) while the MCCP program used Diagnosis codes (DxCG). Both programs have good accuracy as measured by R2.

16. Learning Objectives:

5. Formulate and evaluate insurer reserving techniques for other liabilities.

10. Evaluate the risks associated with health insurance.

Learning Outcomes:

(5a) Describe different types of reserves and explain when each is required:
- Deficiency reserves
- Active life reserves
- Premium reserves
- Deferred acquisition costs
- Claim administration expense reserves
- Calculate the reserves given data

(10a) Evaluate the risk associated with a specific product, including:
- Identify risks inherent in the product
- Describe the types of analysis used to measure the risk
- Discuss methods for mitigating the risks

(10c) Complete a capital needs assessment:
- Calculate capital needs for a given insurer
- Assess capital needs against assets
- Determine actions needed to address issues identified by assessment
- Understand key elements of NAIC and Canadian RBC models

Sources:

GH-C102-07: Health Reserves

GH-C131-12: Chapter 46 of Managed Health Care Handbook, Fourth Edition

Group Insurance, Bluhm, Fifth Edition, 2007
Chapter 19, Risk-Based Capital Formulas

ASOP 42 Determining Health and Disability Liabilities Other Than Liabilities for Incurred Claims
http://www.actuarialstandardsboard.org/pdf/asops/asop042_091.pdf

Commentary on Question:

This question asked candidates to demonstrate an understanding of different types of provider contracting arrangements and the impacts that different types of contracts can have on insurer operations, RBC, and reserves.

16. Continued

Solution:
(a)

(i) Outline aspects of IHI's finances and operations that may be impacted by the contract changes.

(ii) Compare and contrast the effect of each contracting strategy on the issues you identified in (a) (i).

Commentary on Question:
Candidates typically provided a high-level overview of some of the operational and financial impacts that could arise from changing the type of provider contracts, but many did not note the breadth of the impacts, especially around the financial impacts to IHI's RBC and reserve requirements.

- IHI's RBC requirement depends in part on the level of expected claims and the nature / predictability of IHI's provider contracts.
    - Bonus –RBC will be reduced since the expected claims are lower
    - Capitation – RBC will be greatly reduced since claims are much more predictable, but IHI needs to account for the risk that capitated providers fail to provide the agreed-upon services
- IHI's reserves will change:
    - IBNR levels will decrease due to the reduction in total expected claims and the reduction in the portion of medical claims paid on a FFS basis (vs. capitation or bonuses/withholds)
    - Bonus – IHI will need to establish a reserve to cover the expected contingent (bonus/incentive) payments
    - Capitations – IHI will need to establish reserves to pay claims in the event that capitated providers fail to provide the agreed-upon services
- The contract types will impact the predictability of IHI's results
    - Bonus – Assuming the contracts are based on actual utilization/claims results, some improvement in predictability of results is expected as bonuses will be reduced if claims are above target and increased if claims are below target
    - Capitation – Most claims risk will be shifted to capitated providers, so IHI's results are much more predictable; FFS claims may be more volatile since they will be a smaller portion of total claims (and are likely to be for less-common catastrophic events)

16. Continued

- Care management programs may be impacted
  - Bonus – Providers will have some incentive to better manage care in order to receive the bonuses
  - Capitation – Providers will have far more incentive to manage care since they are responsible for providing contracted services under the agreed-upon budget; in light of this, care management programs may shift from IHI to the capitated provider groups
- Additional reporting and claims analysis will be required to support the provider agreements
  - Bonus – IHI will need to track metrics used to calculate bonuses and may want to work with providers to help them be more efficient
  - Capitation – IHI should share data with providers to help them better manage care, and should require that providers submit data necessary for IHI to administer the benefit plans and analyze claims experience

(b) Calculate IHI's required HRBC under each of the current and proposed scenarios.

Commentary on Question:
Candidates generally demonstrated an understanding of how to calculate HRBC and H2. Most candidates did not understand that paying a percentage of billed charges is considered a FFS arrangement when calculating the managed care risk adjustment factor. A number of candidates correctly noted that H2 is usually the largest RBC component for a health insurer.

To earn full credit, candidates needed to calculate the HRBC value for each scenario using the correct HRBC and H2 formulas and recognize that billed charges are assigned a managed care risk adjustment factor of 1.

RBCAC = H0 + sqrt(H1^2 + H2^2 + H3^2 + H4^2)
H2 (in this scenario) = Incurred Claims * Risk Factor * Managed Care Risk Adjustment Factor

All values are in Millions
Incurred Claims are 100 in the Base Scenario and 90 under Options 1 and 2
Risk Factor =
Base: (15% * 25 + 9% * (125-25)) / 125 = 10.2%
Option 1 and Option 2: (15% * 25 + 9% * (112.5-25))/112.5 = 10.3%

MCRAF =
Base: (100 * 1.00) / 100 = 1.00
Option 1: (60 * 1.00 + 30 * 0.75) / 90 = 0.9167
Option 2: (10 * 1.00 + 80 * 0.40) / 90 = 0.4667

16. Continued

H2 =

Base: 100 * 10.2% * 1.00 = 10.2
Option 1: 90 * 10.3% * 0.9167 = 8.53
Option 2: 90* 10.3% * 0.4667 = 4.34

H3 = 20 + 2% of capitated payments

Base and Option 1: 20
Option 2: 20 + 2% * 80 = 21.6

HRBC:

Base: 0 + sqrt (50^2 + 10.2^2 + 20^2 + 100^2) = 114.04
Option 1: 0 + sqrt (50^2 + 8.53^2 + 20^2 + 100^2) = 113.90
Option 2: 0 + sqrt (50^2 + 4.34^2 + 21.6^2 + 100^2) = 113.95

(c)

(i) Describe reserves related to provider liabilities and how each will be impacted by the proposed contract changes.

(ii) Describe how other types of reserves will be impacted by the proposed contract changes.

Commentary on Question:
Most candidates identified some of the impacted reserves but did not provide much detail in describing how they would be impacted. Candidates also tended to focus either on part (i) or part (ii), and few noted the full scope of impacts.

Identification of the various types of provider and other reserves and a brief description of the impact on each of the contract changes was required to earn full credit.

(i)

- Capitation payments owed – Under Option 2, IHI needs to establish a reserve for any capitation payments owed to providers that have not been paid out
- Reserve for accrued incentive payments – Under Option 1, IHI may owe incentive payments to providers and needs to reserve for this liability
- Reserve for contingent liabilities – Under Option 1, IHI may expect to owe incentive payments to providers for services that have been rendered but where a liability has not yet been determined. A reserve needs to be established for the portion of these expected pay-outs that is associated with prior periods.

16. Continued

- Reserve for claims in the event of provider insolvency – IHI needs to ensure that its members receive medical care under the terms of their contracts with IHI regardless of capitated providers' ability to provide that care. If the capitated providers fail (for any reason) to provide the required services, IHI may need to pay a different provider to render the care. A reserve is required for IHI's best estimate of this liability.

(ii)

- IBNR (or claims reserves) – will be reduced slightly under Option 1 and significantly under Option 2 due the lower level of claims paid on a FFS basis
- Premium Deficiency Reserves – IHI may need to establish a PDR if the actual savings from a contract change are less than built into the pricing of IHI's products
- Active Life Reserves (or contract reserves) – These reserves are based on the projected claims levels and may need to be adjusted to reflect the change in projected claims
- Loss Adjustment Expense Reserves – Under Option 2, many fewer claims will need to be adjudicated so a lower LAE reserve would be appropriate. If established as a portion of claims, IHI will need to validate that the percentage is appropriate given the change in the quantity and types of claims likely to be received in Option 2.

17. Learning Objectives:

5. Formulate and evaluate insurer reserving techniques for other liabilities.

Learning Outcomes:

(5a) Describe different types of reserves and explain when each is required:

- Deficiency reserves
- Active life reserves
- Premium reserves
- Deferred acquisition costs
- Claim administration expense reserves
- Calculate the reserves given data

Sources:

GH-C102-07: Health Reserves

GH-C30-10: SOA Session Materials, 2008 Valuation Actuary Session 30 PD, Premium Deficiency Reserves for Health Insurance

AAA Premium Deficiency Reserves Discussion Report, March 2007
http://www.actuary.org/pdf/health/pdr_march07.pdf

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a)

(i) Define PDR.

(ii) List and explain important variables to be considered in calculating the PDR.

A PDR is required when premium and reserves are not adequate to cover future claims and expenses for a given time period. A PDR is no longer required once premium is made adequate. A PDR will recognize future losses immediately. Important variables include the following:

- Premium increases – need to consider regulation environment
- Contract period or projection period
- Benefit expenses – including trend, should not be too conservative
- Expenses – both overhead and maintenance expenses
- Lapse rates or persistency rates – consider effect of premium increases
- Taxes must be considered
- Reinsurance – must be net of reinsurance

17. Continued

(b) Compare and contrast Active Life Reserves (ALR) and PDR.

Commentary on Question:
Many candidates did not adequately compare and contrast the two types of reserves instead simply listed a few general comments.

An ALR is set up for products where premium is level or will increase slower than the claims. An ALR is planned to accumulate when the product is designed. A PDR is not expected to be set up when a product is designed and is due to the inability to get adequate rates for some time period. Both reserves are set up to recognize that future premium is inadequate to cover future claims. In addition, PDR takes into account expenses and an ALR only recognizes future claims.

(c) Calculate the PDR that would be required as of December 31, 2012. Show your work.

Commentary on Question:
Most students included profit in the PDR equation. A PDR is not meant to cover profit and is only needed when actual losses are expected. Several students calculated the PDR on a PMPM basis which does not calculate the entire reserve. A finer element of the PDR missed by the majority of students is that overhead can be reallocated to another profitable line of business. Finally, many students did not consider discounting the PDR.

PDR = Claims plus expenses minus premium

PDR Calculation for MA

Premium = \$800 * 10,000 = \$8 million
Claims = \$670 * 1.08 * 10,000 = \$7.236 million
Fixed overhead = \$10 * 10,000 = \$0.100 million
Commission = 4% * \$8 million = \$0.32 million
Variable expenses = 6.3% * \$800 * 10,000 = \$0.504 million
Gain = (\$160,000)

Overhead can be allocated to other profitable line. In this case MM is profitable enough to cover overhead so the undiscounted PDR is \$60,000 and a discounted PDR using 8% is \$57,735

PDR Calculation for MM

Premium = \$300 * 250,000 = \$75 million
Claims = \$225 * 1.07 * 250,000 = \$60.188 million
Fixed overhead = \$10 * 250,000 = \$2.5 million

17. Continued

Variable expenses = 7% * $75 million = $5.25 million
Commission = 8% * $75 million = $6 million
Gain = $1.063 million

This gain is adequate to cover the $100,000 overhead tied to MA. No PDR is required for MM

(d) Identify considerations that should be made when deciding whether or not to group product lines together for purposes of calculating PDR.

Commentary on Question:
Very few students gave much input on an answer to this portion of the question. Although this question is addressed in various sources, the most complete analysis is found in the discussion paper.

Ten factors that may affect how you group products include materiality, similarity of product types, differences in marketing methods, rate restrictions, geographical rating areas, length of guarantee periods, regulatory requirements, line of business, case size within group, and expected future growth of a possible grouping.

HRGM suggested lines of business include Comprehensive medical, Medicare supplement, Medicare risk, Medicaid, dental, and high-deductible medical reinsurance.

Group size categories could include small group, large group, mega group and any specific group that comprises 10% of total enrollment

18. Learning Objectives:

4. Formulate and evaluate insurer claim reserving techniques.

Learning Outcomes:

(4a) Describe the types of claim reserves (e.g., due and unpaid, ICOS, IBNR, LAE, PVANYD).

(4b) Explain the limitations and applications of the various valuation methods:

- Lag Methods
- Tabular Methods
- Case Reserves
- Projection Methods
- Loss Ratio Methods

Sources:

CIA Educational Note, Valuation of Group Life and Health Policy Liabilities
http://www.actuaries.ca/members/publications/2010/210034e.pdf

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a) List the considerations when setting LTD claim termination rate assumptions.

Commentary on Question:

Most candidates were able to list of at least some of the valid items.

1. Age of Claimant
2. Sex
3. Elimination Period
4. Policy Maximum Benefit Duration
5. Diagnosis (cause of disability)
6. Own Occupation Period (definition of disability)
7. Claim Administration Practices
    a. Any changes from past practices
    b. Any differences in claim practices compared to industry experience
8. Current Phase of Economic Cycle
9. Level of Benefits Provided
    a. Higher income replacement generally leads to lower termination rates
10. Partial Disability
11. Special Benefits (COLA, etc)
12. Any Unusual Financial Arrangements
    a. ASO for short period of time, then going to fully insured

18. Continued

(b)

Commentary on Question:
Part (b)(i) was a fairly straight forward calculation. Most candidates were able to do this calculation correctly, but a large number of candidates discounted the claim payments and ending reserve back to beginning of the year rather than calculating interest earned on the beginning reserves, which is not correct.

On part (b)(ii), most candidates pointed out the pattern of gains and losses and recommended some adjustment to the termination rates.

For part (b)(iii), most candidates recommended changing the claim management practices in some form, but there were come candidates that mentioned changing termination rates which isn't really an operational change. Changes to reserves were asked as part of (b)(ii) above.

(i) Calculate the total reserve gain/loss. Show your work.

Gain/loss by duration = Reserve at 1/1/2012 - Actual Payments + Valuation Interest - Reserve at 12/31/2012
Valuation Interest = Reserve at 1/1/2012 x 5%

Claim Duration	Reserve at January 1, 2012	Actual Payments	Valuation Interest	Reserve at December 31, 2012	**Gain**
7+	$675,000	$130,000	$33,750	$590,000	**-$11,250**
6	$305,000	$68,000	$15,250	$256,000	**-$3,750**
5	$345,000	$65,000	$17,250	$299,000	**-$1,750**
4	$405,000	$71,000	$20,250	$354,000	**$250**
3	$550,000	$80,000	$27,500	$489,000	**$8,500**
2	$635,000	$84,000	$31,750	$567,000	**$15,750**
1	$850,000	$111,000	$42,500	$757,000	**$24,500**
All Durations	$3,765,000	$609,000	$188,250	$3,312,000	**$32,250**

(ii) Recommend possible changes to the reserve assumptions, based on your calculation in (b)(i). Justify your answer.

In total, reserves are adequate – the total run-off gain is greater than 0

Reserves at the beginning of the period are more than adequate, but claims in the later duration appear to be insufficient – claim durations 5+ are showing loses

18. Continued

Conservative assumptions in the early durations are masking the inadequacies in later durations

Reduce claim termination rate assumptions after duration 4 – to keep reserves whole in total, could reduce margins in early durations and spread across the later durations

Review offset assumptions in the claim reserves – Are partial disability offsets too aggressive? Are Social Security offsets assumed too aggressive? Are Social Security dependent offsets properly reflected?

(iii) Recommend possible changes to HPLIC operations, based on your calculation in (b)(i). Justify your answer.

Has claim termination experience declined in later durations? – compare past termination rates to more recent experience

Have claim demographics shifted materially? – look to see if the claimants are older, more seriously disabled, etc.

Look for possible changes in claim management practices based on what you find above (return to work programs, vocational rehabilitation, clinical reviews, etc.)

19. Learning Objectives:

2. Typical markets: Understands customer segments and how products are marketed to each.

5. Formulate and evaluate insurer reserving techniques for other liabilities.

6. Evaluate financial performance measures for insurers for both short-term and long-term products.

Learning Outcomes:

(2b) Describe common marketing channel to each major customer segment.

(5a) Describe different types of reserves and explain when each is required:

- Deficiency reserves
- Active life reserves
- Premium reserves
- Deferred acquisition costs
- Claim administration expense reserves
- Calculate the reserves given data

(6b) Project financial outcomes and recommend strategy to management to achieve financial goals.

(6c) Compare key differences and similarities in measures by accounting basis (statutory, tax, GAAP).

Sources:

Individual Health Insurance, Bluhm, W.F., 2007

- Chapter 6, Reserves and Liabilities, including applicable CD files
- Chapter 10, Other Insurance Functions, pgs. 295 – 301 only

U.S. GAAP for Life Insurers, Herget, T., Second Edition 2006

- Chapter 3, Expense And Capitalization

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a) List the typical distribution channels used for selling and marketing individual insurance.

Commentary on Question:

Most candidates were successful in listing the typical distribution channels.

19. Continued

Independent brokers
General agents
Captive agents/Retail Stores
Telemarketing
Direct marketing - mass mail
Internet sales

(b) Identify the distribution channel most frequently used to sell individual insurance products. Describe the typical cost structure associated with this distribution channel.

Commentary on Question:
Most candidates grouped agents and brokers into the same distribution channel. Many candidates listed all cost structures rather than describing one typical structure.

Most individual insurance products are sold through independent brokers, and commission rates are typically paid as a percentage of premium.
Commissions are typically higher in the first year and lower renewal years.

(c)

(i) Explain an accounting approach that might be used to demonstrate profitability on a GAAP basis in 2012.

(ii) Describe how the accounting approach would differ under Statutory accounting.

Commentary on Question:
(i) Most candidates recognized that a DAC can be set up in order to show profitability under GAAP. However, they did not go into enough detail to receive maximum points (e.g. the components of acquisition costs).
(ii) While most candidates understood that DAC is not permissible under STAT, they failed to mention that a 2-year preliminary term is allowable.

(i) The acquisition costs are causing the product to appear unprofitable on the books, so a DAC asset can be set up to defer recognition of the acquisition costs.

Acquisition costs include the following:

- Underwriting
- Policy issuance
- The amount by which first year commissions exceed renewal commissions

19. Continued

Since the overall commission in 2012 was a lower percentage of premium compared to 2011, the first year commissions must be higher than renewal commissions, meaning that the amount by which first year commissions exceed renewal commission can also be deferred.

Setting up a DAC asset will reduce the expenses in 2012, and therefore demonstrate profitability.

(ii) Statutory accounting does not allow a DAC asset to be established, and instead, allows for a two year preliminary term reserve to be set up. This allows the insurer to delay setting up a policy reserve for the first two years of the policy, which subsequently reduces the benefit expense recognized in the first two policy years.

(d) Recommend if SFL should exit the individual disability market. Justify your recommendation and show your work.

Commentary on Question:
Candidates should take a stance – many provided alternatives under various scenarios. The question asks for the candidate to make a decision and support their opinion. Also, many candidates failed to connect part (c) into their recommendation.

SFL should not exit the individual disability market.
Once the DAC asset is set up and the acquisition costs are amortized over the life of the contract (7 years), the product will appear profitable under GAAP.

20. Learning Objectives:

13. Demonstrate an understanding of the accounting requirements and methodology regarding retiree life and health benefits.

Learning Outcomes:

(13a) Determine appropriate baseline assumptions for benefits and population.

Sources:

Fundamentals of Retiree Group Benefits, Yamamoto, 2006

- Chapter 9, Actuarial Methods and Assumptions, pages 253-269

Commentary on Question:

This question was testing the candidate's knowledge of retiree medical valuation assumptions and the candidate's ability to apply that knowledge.

Solution:

(a) Describe each of the following assumptions and the considerations used in setting them:

(i) Trend

(ii) Discount rate

(iii) Retirement incidence

(iv) Claim costs

(v) Plan participation

Commentary on Question:

Many candidates did not distinguish how these assumptions applied to retiree medical plans and valuations. In particular, they did not comment on the impact of Medicare-eligibility on claim costs. Additionally, many candidates implied that by selecting a higher participation assumption, selection would be minimized. While true, the question was testing how these assumptions applied to valuations so the assumption should represent what is expected; participation for retiree medical valuations is generally a one-time election for each individual. Some candidates addressed the discount rate from a pension plan perspective, assuming that there are actual assets backing the liability. Retirement incidence was also often confused as candidates thought the incidence rate should include all decrements (death, withdrawal, etc.). Many candidates "defined" terms using the term itself.

20. Continued

(i) Trend
- Used to project per member/retiree current medical claim costs into the future
- Impacted by inflation, utilization, cost shifting & plan design
- Initial trend represents mix of services provided by plan
- Will grade down over time as trend cannot outpace growth in GDP
- Ultimate level at GDP + 1%
- Excludes aging

(ii) Discount rate
- Used to get present value of future benefit payments
- Should represent rate on high quality, fixed income securities
- Typically 2-4 percentage points above inflation rate

(iii) Retirement incidence
- Probability of an employee retiring during a given year
- Usually varies by age & service
- Critical for retiree medical valuations since plan costs are not actuarially equivalent by age, so can't just assume everyone retires at age 65

(iv) Claim costs
- Projected health plan costs per member for retiree based on health costs at the time of retirement
- Under 65 retiree costs typically much higher than active costs (150-200%)
- Post 65 costs drop due to Medicare integration, generally 40-80% of active costs

(v) Plan participation
- If plan requires retiree contributions, not all employees will elect coverage at retirement
- May vary for retirees & spouses
- The higher the contributions, the lower the participation
- Average costs per capita will be higher when participation is lower

(b) Critique the appropriateness of each assumption relative to each other and the economic indicators.

20. Continued

Commentary on Question:
Candidates needed to comment on whether or not an assumption was reasonable AND explain why or why not. Many candidates only addressed the five items from part (a), but the question was looking to evaluate all assumptions. Many candidates did not distinguish between initial and ultimate trend. COBRA rates were often misinterpreted as COBRA costs, so candidates assumed there was a high level of selection inherent in the claim cost assumption; COBRA rates are actually 102% of active "premiums." For retirement incidence, candidates often indicated it was too high but did not address "when" those employees would retire instead (since other decrements are separate, all other employees have to retire either before or after 65 if they don't retire at 65). Retirement incidence is also not the same as average retirement age. Some candidates incorrectly thought ultimate trend of 9% was the "compound" impact of 6 years of trend, rather than an annual amount. Additionally, some responses were disorganized and hard to follow as candidates did not "label" which assumption was being evaluated with each of their comments.

- Inflation assumption is too high, much higher than long-term average and what is commonly used. Should be less than medical trend and usually less than CPI-medical.
- Discount rate seems high since it exceeds the yield for Moody's AA & ML 15+. However, it is internally consistent with the inflation assumption.
- Ultimate medical trend should be lower than initial. Would be more reasonable if swapped.
- Initial medical trend usually higher than inflation & consistent with current underlying trends.
- Years to ultimate – okay, in the range typically used in valuations
- 100% retire at 65 – Need to set as an array of retirement probabilities, reflecting early & "late" retirements. Unreasonable to assume all retire at 65 (since there is pre-65 coverage).
- Average spouse age – This is okay
- Claim costs set to COBRA rates – This is inappropriate as pre-65 retirees typically cost much more than actives. Claim costs should also reflect a reduction at age 65 for Medicare integration.
- Plan participation – This is not an appropriate assumption since retirees have to pay a contribution.

20. Continued

(c)

(i) Recommend directional changes to each assumption. Justify your answer.

(ii) Explain the directional impact on the liability for each recommended assumption change in (c)(i), independent of the other changes.

Commentary on Question:
Candidates needed to recommend either no change to each assumption or whether it should be increased or decreased. They also needed provide justification and the directional impact on the liability (not the costs). For retirement incidence, candidates had to say more than "lower retirements at age 65". Candidates often had poor organization on this section (not clearly labeled), although credit could be received for adequate justification in part (b) if consistent with the answer to part (c). Credit was given for the "correct" liability impact even if the "direction" was incorrect.

- Inflation assumption should be reduced, but this does not have a direct impact on the liability.
- Discount rate should be reduced to be consistent with Moody's. This will increase the liability.
- Increase initial medical trend. Initial trend should be consistent with current experience & will increase the liability.
- Decrease ultimate trend. Ultimate trend should be reduced to around inflation + 1% and will decrease the liability.
- Keep 6 years for grade-down period.
- 100% retire at 65 – Set initial retirement incidence before age 65, then drop until age 65 when a large portion retire, then drop for a couple years & all remaining retire at age 67 or 70. Will likely increase liability since pre-65 costs are much higher than post-65 costs.
- Average spouse age – This is okay
- Claim costs set to COBRA rates – Use retiree specific experience to set a higher claim cost pre-65 and a lower claim cost post-65. Assuming retirement incidence is unchanged (100% at age 65), this will reduce liability. But if use a more reasonable retirement incidence, liability will likely increase.
- Plan participation – Lower the participation to reflect that the plan has contributions. Will decrease liability.

21. Learning Objectives:

8. Evaluate the impact of taxation on company/plan sponsor financial management.

Learning Outcomes:

Sources:
The Handbook of Employee Benefits, Rosenbloom, J.S., Seventh Edition, 2011
- Chapter 30, Tax Exempt Trust (ASO

ASOP #41

Commentary on Question:
Commentary listed underneath question component.

Solution:
(a)

(i) Describe the advantages and disadvantages of self-funding.

(i) Project 2013 premium and claims for BMC. Show your work.

(ii) Recommend whether BMC should self-fund. Justify your answer.

Commentary on Question:
For parts (ii) and (iii), some candidates mistakenly added or removed the $30 pmpm administrative expense for fully insured in the calculations.

For part (ii), calculations should normally be done on a pmpm basis to normalize for changes in the member population. This is unnecessary for this question since the membership is expected to be stable going forward.

Also, many candidates mistakenly averaged all three years of claims to perform a projection instead of simply trending the most recent year forward. The 3 years of information were provided to illustrate historical claim fluctuation.

Also, in part (iii) recommending for or against self insurance could be an acceptable response based on the explanation given by the candidate.

(i) **Advantages**

i. Capturing favorable claims experience
    1. Actual Plan Cost will be less than insurance company's premium and savings outweighs the risk

ii. Reducing Administrative and Other Claims Expenses
    1. No premium tax is charges are transferred to the employer
    2. No risk charge
    3. Typically no commissions
    4. Administrative and Underwriting charges are typically much less than an insured arrangement

21. Continued

iii. Avoid state mandated benefits
   1. ERISA preempts state laws
   2. Important for multi-state employers because it allows the same benefits across different states

iv. Greater flexibility and control
   1. Plan Design
   2. Financing

Administration

Disadvantages

i. Concern over the Predictability of Annual Plan Cost
ii. The ultimate financial responsibility that comes with self-funding
iii. Lack of Underwriting, Legal, and Administrative services
iv. Employee concerns about financial security of their health care benefits
v. Collective bargaining negotiations and stipulations
vi. No financial and administrative third part buffer with employees
vii. Financial risk of Consolidated Omnibus Budget Reconciliation Act participants (COBRA)
viii. Limitations by state insurance laws on access to HMO's and other managed care plans with cost advantages
ix. Not community rated

(ii) **Claims**

2011 Paid Claims: $990,000
Paid Claim Trend: 11%
2013 Projected Claims = 2011 Claims x $(1+ \text{Paid Claim Trend})^2$
$= \$990{,}000 \times (1.011)^2 = \$1{,}219{,}779$

Premium

2011 Premium: $1,361,250
Annual Rate Increase: 10%
2013 Projected Premium = 2013 Premium x $(1+ \text{Annual Rate Increase})^2$
$= \$1{,}361{,}250 \times (1.010)^2 = \$1{,}647{,}113$

(iii) 2013 Savings = 2013 Fully Insured Costs – 2013 Self Insured Costs
2013 Savings = 2013 Projected Premium – (2013 Claims + 2013 Self Insured Admin)
2013 Savings = $1,647,113 – ($1,219,779 - $15 x 300 members x 12 months)
2013 Savings = $373,334

21. Continued

Recommendation for self funding: I recommend that BMC self funds in 2013. Not only is there projected savings for 2013, enough to outweigh the potential risks of self-funding.

Recommendation against self funding: While there is a projected savings in 2013, the historical claim volatility is a source of concern. I recommend remaining fully insured to avoid unforeseen costs.

(b) Explain how you would communicate your responses from part (a) to BMC in compliance with ASOP 41.

Commentary on Question:
The question is not asking what is included in ASOP 41, but is asking the candidate to summarize his recommendation and list relevant points or facts that would need to be included as part of ASOP 41. A list of basic elements of ASOP 41 is not an acceptable answer.

A good answer would include:

- *A summary of the results*
- *What events would need to occur to change the recommendation*
- *Risk or uncertainty associated with the results*
- *Important or questionable assumptions*
- *Limitations of the study*

Several important ideas are outlined below. Answers with similar ideas or developed along similar lines of thought could still receive full credit.

- As a result of changing from fully insured to self-insured, we project a savings of $373,334 in 2013. This assumes a 10% average annual rate increase, an 11% annual claims trend, and a stable block of business.
- It is my recommendation that the company (self funds/stays fully insured).
- Further investigation should be done into the company's historical performance, especially what occurred in 2010. If it turns out that 2010 was somehow justified through known, one time causes, then there is less risk in self-insuring. If instead year-to-year are highly volatile, BMC should be more inclined to remain fully insured.
- The company is assumed to have a stable, credible block of business. Significant changes in benefits or rapid employee turnover could invalidate these results.
- The study relies on data through 2011. If additional data becomes available and does not behave as expected, the study will need to be revisited.

21. Continued

- This study relies on the data provided. If any of the data is inaccurate or misleading, the recommendation is no longer valid and additionally, the limited data available.
- This study complies with all relevant ASOPs and all assumptions and methods prescribed by law.
- I am an actuary qualified to issue this opinion based on the fact that I meet the US qualification standards of AAA.

22. Learning Objectives:

9. Evaluate the impact of regulation on company/plan sponsor financial management.

Learning Outcomes:

(9b) Compare the primary federal regulations with which an employer must comply when offering benefit plans.

Sources:

Essentials of Managed Health Care, Kongstvedt, P.R., Sixth Edition, Ch. 30

Commentary on Question:

This question was intended to test a candidate's understanding of the Affordable Care Act and how it relates to employer sponsored insurance. This question addressed the rules around wellness programs and the health insurance landscape from the perspective of the employee.

To earn full credit for part (a), candidates had to be able to sufficiently describe the applicable requirements for wellness programs and demonstrate an understanding of the allowable premium differential under these wellness programs. For part (b), candidates had to describe the different benefit options available to each employee. This description needed to include a summary of the available sources of coverage as well as any potential financial assistance available to the three employees described in the problem.

Solution:

(a)

Commentary on Question:

Candidates generally performed well on part (i). Many candidates were able to provide most of the requirements for a wellness program. Candidates did not perform as well on part (ii). Many candidates calculated the premium differential to be 30% of the employee contribution rather than 30% of total premium.

(i) Describe the requirements the wellness program must meet according to the Affordable Care Act (ACA).

- The program must be reasonably designed to promote health or prevent disease
- The reward for the wellness program cannot exceed 30% of the total cost of coverage
- The wellness program must not be a subterfuge for discrimination against enrollees based on a health status factor
- Individuals must be given the opportunity to qualify for a reward at least once per year
- The full reward must be made available to all individuals who qualify for participation in the program

22. Continued

- Individuals must be given an alternative incentive target if their physician determines it is unreasonably difficult to achieve the target
- All wellness program materials must describe the terms of the wellness program and the availability of a reasonable alternative standard

(ii) Calculate the maximum premium EBC could charge employees who do not participate in the wellness program. Show your work.

- Current employee contributions as a percentage of total premium:
  - $300 / $1,200 = 25%
- Allowable premium differential = 30%
- Maximum premium for employees who do not participate in the wellness program:
  - $1,200 x (25% + 30%)
  - = $1,200 x 55%
  - = $660

(b)

Commentary on Question:
Candidates did well describing the benefit options available to each employee and calculating the FPL and premium as a percentage of household income. However, most candidates did not comment on the cost sharing subsidies available to each employee and many candidates were not able to calculate the premium subsidy in Step 3 of the solution. Overall, candidates performed well on this question, but few candidates were able to fully answer all parts of the question.

(i) Describe the 2014 benefit options available to each employee listed above.

In 2014, these employees will have the option to maintain their existing coverage, join an Exchange plan, enroll in another qualified plan such as a parent's plan, or forgo coverage and become uninsured.

Under the individual exchange, employees will have the choice of plans at four metallic levels: Bronze, Silver, Gold, and Platinum with actuarial values of 60%, 70%, 80%, and 90% respectively. Employee under 30 years old could also choose to enroll in a catastrophic coverage plan.

22. Continued

Employees could be eligible for premium and/or cost sharing subsidies based on their household income and the premium being charged for their employer's plan. Employees with a household income between the Medicaid Federal Poverty Level (FPL) threshold and 400% FPL with an employee contribution exceeding 9.5% of household income could be eligible for a premium subsidy on the Exchange.

(ii) Calculate the 2014 federal subsidy available to each employee listed above.

Step 1: Calculate Household Income Relation to FPL

Employee	FPL
1	= $43,300 / $15,618 = 277%
2	= $28,825 / $11,530 = 250%
3	= $107,000 / $23,793 = 450%

Step 2: Calculate Premium as a % of Household Income

Employee	Premium as % of Household Income
1	= ($300 x 12) / $43,300 = 8.3%
2	= ($300 x 12) / $28,825 = 12.5%
3	= ($300 x 12) / $107,000 = 3.4%

Employee	Result
1	Not eligible for a premium subsidy, the premium is less than 9.5% of HHI. Eligible for cost sharing subsidy of 1/2 reduction based on the employee's household income
2	Eligible for a premium subsidy and Eligible for cost sharing subsidy of 1/2 reduction based on the employee's household income
3	Not eligible for a premium or cost sharing subsidy because household income exceeds 400% of FPL

Step 3: Calculate the premium subsidy for employee #2

2nd Lowest cost silver plan annual premium	=$650 x 12 = $7,800
Max premium as % of HHI	8.05%
Expected premium on Exchange if 2nd Lowest Silver is Purchased	= $28,825 x $8.05% = $2,320
Federal Subsidy is	=$7,800 - $2,320 = $5,480