5. (2.5 points)

The following data shows the experience of a merit rating plan for a specific state.

| Number of Accident-Free Years | Earned Car Years | Earned Premium ($000) | Number of Incurred Claims |
|---|---|---|---|
| 3 or More | 250,000 | 250,000 | 1,200 |
| 2 | 300,000 | 100,000 | 625 |
| 1 | 25,000 | 100,000 | 750 |
| 0 | 12,000 | 150,000 | 1,500 |
| Total | 587,000 | 600,000 | 4,075 |

The base rate is $1,000 per exposure. No other rating variables are applicable.

a. (0.5 point)

The typical exposure base used to develop the merit rating plan is earned premium. Briefly discuss two assumptions in selecting this exposure base.

b. (1.5 points)

Calculate the ratio of credibility for an exposure with two or more years accident-free experience to one or more years accident-free experience.

c. (0.5 point)

Calculate the premium for an exposure that is accident free for two or more years.

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**EXAM 8 FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT**

**QUESTION 5**

**TOTAL POINT VALUE: 2.5** **LEARNING OBJECTIVE: A2**

**SAMPLE ANSWERS**

**Part a:** 0.5 point

The 2 assumptions made are:

1. High frequency territories are also high premium territories
2. Territorial differentials are proper / adequate

**Part b:** 1.5 points

Frequencies:

- Freq 2 or more = (1,200+625)/(250,000+100,000) = 0.0052
- Freq 1 or more = (1,200+625+750)/(250,000+100,000+100,000) = 0.0057
- Freq total = 4,075/600,000 = 0.0068

Mod factor:

- Mod 2 or more = 0.0052/0.0068 = 0.7677
- Mod 1 or more = 0.0057/0.0068 = 0.8425

Credibility factors:

- Cred 2 or more = 1 – Mod 2 or more = 1 – 0.7677 = 0.2323
- Cred 1 or more = 1 – Mod 1 or more = 1 – 0.8425 = 0.1575

Ratio = 0.2323/0.1575 = 1.4750

**Part c**: 0.5 point

Premium = Base rate x Mod

Premium = 1000 x 0.7677 = $ 767.7

**EXAMINER'S REPORT**

**Part a**

Most candidates were awarded full credit. No common errors were identified.

# EXAM 8 FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

**Part b**

Most candidates were awarded full credit. The most common error was using earned-car years in the calculation of the frequency instead of earned premium.

**Part c**

Most candidates did well on this question. The two most common errors were:

- Using something other than the base rate
- Calculating premium for the sum of all earned-car years