11. (2.5 points)

Given the following information:

Size of Loss ($000)	Loss Distribution	Average Reported Loss ($000)
X <= 200	20%	100
200 < X <= 400	20%	300
400 < X <= 600	20%	500
600 < X <= 800	20%	700
800 < X <= 1,000	20%	900
Total	100%	500

- Expected claim frequency = 1%.
- Expected losses are uniformly distributed.
- A home is valued at $1,000,000.

a. (1 point)

Calculate the rate per $1,000 of coverage for the home at the following amounts of insurance:

i. $1,000,000
ii. $600,000

b. (0.5 point)

Briefly discuss a problem associated with underinsurance from the following perspectives:

i. Insured
ii. Insurer

c. (1 point)

The home is insured for $700,000 with no deductible and a coinsurance requirement of 80%. Calculate the indemnity payments and coinsurance penalties for the following losses:

i. $600,000
ii. $850,000

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QUESTION 11

TOTAL POINT VALUE: 2.5 | **LEARNING OBJECTIVE(S): A10**

SAMPLE ANSWERS

Part a: 1 point

Sample Response for i. 1,000,000 AOI

Rate per \$1000 = $\frac{1\% \times 500{,}000}{1{,}000{,}000/1000}$ = \$5.00

Sample Response for ii. 600,000 AOI

Severity = 100,000 x 20% + 300,000 x 20% + 500,000 x 20% + 600,000 x 40% = 420,000

Rate per \$1000 = $\frac{1\% \times 420{,}000}{600{,}000/1000}$ = \$7.00

Part b: 0.5 point

Sample Responses for i. Insured

- Insured will not be fully covered for a total loss or near total loss
- Insured will suffer coinsurance penalties for losses below the coinsurance requirement (i.e. not fully reimbursed for loss)

Sample Responses for ii. Insurer

- If the insurer assumes all policies are insured to value, then rates will be inadequate for those underinsured policies
- If the insurer doesn't recognize the underinsurance of some homes, it will charge them an inappropriate rate which will be too low to cover expected losses

Part c: 1 point

Sample Response for i. 600,000

a = min(1, 700,000/(1,000,000 x 80%)) = 0.875

Indemnity = min(700,000, 600,000 x .875) = 525,000

Penalty = 600,000 – 525,000 = 75,000

Sample Responses for ii. 850,000

Indemnity = min(700,000, 850,000 x .875) = 700,000

Penalty = 700,000 – 700,000 = 0

OR

When loss > coinsurance requirement, there is no coinsurance penalty and the indemnity payment will be 700,000

EXAMINER'S REPORT

Candidates were expected to illustrate knowledge of coinsurance calculations and their implications.

Part a

Candidates were expected to calculate rates both with full insurance to value and with underinsurance. That process included capping severities in the upper layers of the expected loss distribution as well as calculating a pure premium and subsequent rate.

Common errors included:

- Not recognizing the need for capping in the loss distribution.

- Ignoring the frequency component of the calculation.
- Using the wrong limit in the denominator of the rate calculation (usually using $1 million in the denominator for both limits).
- Performing calculations for just one of the limits provided.
- Using incorrect values in calculated the expected loss including using percentage weights that did not sum to 1.0 (ex. 20% x 100 + 20% x 300 + 20% x 500 = 180).

Part b

Candidates were expected to identify a shortcoming of underinsurance from both the perspective of the insured and the insurer.

Common errors included:

- Assuming those who are fully insured are paying a rate that subsidizes the underinsured when, in reality, the rate charged to the fully insured policyholder is just adequate and not excessive.
- Identifying regulator actions after a catastrophe as a possible disadvantage to the insurer. As this is an issue that would likely cause payments higher than purchased limits on both those underinsured and those insured to value (due to increased cost of construction, for example), the candidates did not identify a problem specific to underinsurance.
- Using "rates are inequitable or inappropriate" as an issue for the insurer. There is a broad array of issues that cause rates to be inequitable – candidates need to demonstrate that they understand the mechanics of what is happening specific to underinsurance. This simple statement does not demonstrate which rate is equitable and which is not (between the fully insured and underinsured). This answer could reasonably be interpreted as stating that both groups of insureds are being charged the wrong rate but actually those insured to value are being charged the correct rate.

Part c

Candidates were expected to calculate indemnity payments and coinsurance penalties for an underinsured policy given two loss scenarios.

Common errors included:

- Errors in calculating the coinsurance requirement or apportionment ratio.
- Performing calculations for just one of the losses provided.
- Not recognizing the need to cap the indemnity payment at the policy limit of $700,000 for the second loss amount.
- Calculating only indemnity payments or only penalties but not both.
- Using incorrect values (especially the loss amount or amount of insurance) in the calculation of indemnity payments or penalties.