7. (1.75 points)

An insurer currently offers the following coverage limits at actuarially sound premiums.

Limit	Premium
$100,000	$350
250,000	700

Next year, underwriting would like to offer additional coverage options. The following premiums are under actuarial review.

Limit	Premium
$500,000	$1,000
1,000,000	1,800

Argue for and against the actuarial soundness of these new premiums as they relate to the lower-limit options.

CONTINUED ON NEXT PAGE

QUESTION 7

TOTAL POINT VALUE: 1.75 **LEARNING OBJECTIVE: B1**

SAMPLE ANSWERS

Sample 1

Limit (000)	Premium	Chg in prem/Chg in limit
100	350	-
250	700	.0023
500	1000	.0012
1000	1800	.0016 = (1800-1000)/(1000K – 500K) – this fails the ILF test

Fails because the incremental change in premium is higher than a lower layer which implies negative probability. Therefore, reject.

This can be acceptable if adverse selection is considered. This will occur when risks that have large loss potential purchase higher limits. (Knowing there will be large losses) or since court cases and settlements tend to look at policy limits when settling cases.

Sample 2

Limit	Premium	ILF
100,000	350	1.0
250,000	700	2.0 = 700/350
500,000	1000	2.8571 = 1000/350
1,000,000	1800	5.1429 = 1800/350

ILF	Marginal Rate
1.0	-
2.0	.0067 = (2-1)/150 = Change in ILF/Change in Limit
2.8571	.0034
5.1429	.0046

Against: The marginal rate is not mathematically decreasing as the marginal rate increases from the 500K limit to the 1M limit. This fails the consistency test. The marginal rate should monotonically decrease as the limit increases since losses have to penetrate lower layers in order to breach the higher layers.

For: There may be antiselection occurring at these higher layers in that

a) Insureds purchasing higher limits may be doing so because they have worse loss experience

b) Legal settlements may settle based on policy limits so higher limits mean higher settlements.

Therefore higher limits are justified in charging a higher marginal rate.

Sample 3
Alternative credit for the "For"

Favorable selection is also possible, where less risky insureds are opting for higher limits to protect their assets, or the insurer is seeking out these higher limits for better risks. In this case the premiums for 500K are not justified.

Sample 4
Alternative credit for the "For"

If we add risk load to ILF – the loss at 1M may have a very high volatility (this is likely since we are talking about high severity low frequency losses). In this case, the premium could be actuarial sound.

Sample 5
Alternative credit for "For"

Market conditions

EXAMINER'S REPORT

Candidates were expected to know the properties of actuarially sound ILFs and should be able to explain why the ILFs do not adhere to the properties, yet could make sense given other factors, like risk load, adverse selection or favorable selection.

To obtain full credit for the "against" argument, candidates should have calculated marginal rates, determined that the marginal rates were inconsistent and explain why the inconsistency is not appropriate. Full credit for the "for" argument would include two examples and a brief explanation of how the ILFs might be appropriate.

Candidates generally were able to calculate marginal rates and determine that the ILFs failed the consistency test. Many candidates missed the part of the question that required the candidate to explain arguments for both "for" and "against" the ILFs. A complete answer for either argument gave the candidate a little more than half credit for the question.

The biggest trip-up in this question was if a candidate did not recognize that they were supposed to argue for and against the new ILFs. Candidates that were able to calculate the marginal rates and note that they failed the consistency test but did not explain the underlying reason for the consistency did not receive full credit.

Candidates that only gave one argument for the ILFs or just said adverse selection without describing adverse selection did not receive full credit.