26. (2.75 points)

A primary insurance company is considering the following aggregate excess of loss reinsurance contracts.

	Contract Terms	Reinsurance Premium
Contract #1	\$150,000 excess of \$60,000	\$40,000
Contract #2	\$2,000 excess of \$38,000	\$1,000
Contract #3	\$25,000 excess of \$17,000	\$21,000

The following represents the gross annual loss distribution:

Average	\$20,000
90th percentile	\$40,000
95th Percentile	\$100,000
99th Percentile	\$200,000

Additionally:

- There are no additional expenses or reinsurance contract features
- The interest rate is 0%

a. (1.5 points)

Determine whether each contract passes the 10-10 rule for risk transfer.

b. (0.75 point)

Fully describe whether Contract #1 qualifies for reinsurance accounting under the "Substantially All" risk transfer provision.

c. (0.5 point)

Describe the Expected Reinsurer Deficit method of testing for risk transfer.

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SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION: SPRING 2018 EXAM 6U, QUESTION 26	
TOTAL POINT VALUE: 2.75	**LEARNING OBJECTIVE: E**
SAMPLE ANSWERS	
Part a: 1.5 points	

Sample 1:

Contract 1

40k x 1.1 = 44k
44+60 = 104
104 > 40 90^{th} percentile less than 10% chance of at least 10% loss not pass 10-10

Contract 2

1x1.1=1.1k
38+1.1 = 39.1
39.1 < 40 pass 10/10

Contract 3

21x1.1=23.1
17+23=40.1k
40.1>40 not pass 10-10

Sample 2:

90^{th} percentile loss = 40k

Contract 1

Net loss = $0 -> LR 0/40k = 0% < 110% Does not pass
*Also accepted 0/40 - 1 = -100% UW loss < 10%

Contract 2

40K – 38 = 2k -> 2/1 = 200% ->110% Pass Test
*Also accepted 2/1 – 1 = 100% UW Loss > 10%

Contract 3

40-17=23 -> 23/21 = 109.5% <110% Does not pass
*Also accepted 23/21 – 1 = 9.5% UW Loss < 10%

Sample 3:

Contract 1

40k x .1 = 4000
Prob of loss = 1%

Contract 2

10k x .1 = 100
Prob of loss = 10%

Contract 3

21k x .1 = 2100
Prob of loss = 5%

Part b: 0.75 point

SAMPLE ANSWERS AND EXAMINER'S REPORT

Sample 1
No, the reinsurer is not assuming substantially all of the insurance risk of the primary insurer. They will only lose money under 5% of the loss scenarios. The substantially all exception would be met if the reinsurer took a 100% (very high) quota share percentage of the book.

Sample 2
To qualify for 'substantially all' provision, nearly all of the risk needs to be transferred. This usually only applies to QS contract where a profitable line of business can be reinsured in order for ceding company to increase capacity. This is excess of loss policy. Does not apply.

Sample 3
To fulfill 'substantially all' exception reinsurance must be

- 100% quota share or
- An individual contract with no risk limiting features.

Contract 1 does not meet either of those descriptions. It covers a high excess layer (excess of 60k) and only partially (up to 150k) these are features that limit the amount of risk to the reinsurer.

Sample 4
No. In order for the contract to qualify for 'substantially all' provision, the reinsurer would have to be in substantially the same position as the cedant, as in the case of a quota share agreement. Given that the insurer retains the first $60,000, the reinsurer would be in a different economic position than the cedant.

Part c: 0.5 point

Sample 1
The expected reinsurer deficit method does not only look at the loss amount at the 10%-ile. It looks at the losses across all percentiles and calculate the expected deficit (or loss to the reinsurer). If this deficit is greater than or equal to 0.01 of the premium the contract is assumed to pass risk transfer.

Sample 2
The ERD looks at the probability of a NPV loss multiplied by the average severity of a UW loss, and compares to a threshold (usually 1%). If it is higher than threshold, then qualifies for risk transfer.

Sample 3
Pr(NPV Losses) x Avg Severity UW loss > 1% risk is transferred.

EXAMINER'S REPORT

The question required candidates to describe different methods of risk transfer testing for reinsurance contracts and evaluate some specific methods of risk transfer testing for specific contracts.

SAMPLE ANSWERS AND EXAMINER'S REPORT

Part a

Candidates were expected to be able to apply the 10/10 rule to three different reinsurance contracts. This required applying the reinsurance contract limit and attachment to the gross loss at the 90th percentile, calculating the reinsurer's underwriting loss (or gain) at the 90th percentile, and evaluating whether the underwriting loss was greater than 10% of the reinsurance premium.

Alternatively, candidates could calculate the gross loss amount that would produce a 10% underwriting loss for the reinsurer, and evaluate whether that loss was larger or smaller than the 90th percentile gross loss, passing the contract if it was smaller and therefore more likely than 10%.

Common errors include:

- Evaluating the loss to the reinsurer compared to a 10% loss ratio instead of a 10% underwriting loss
- Not taking the contract attachment point into consideration and comparing the gross loss to the reinsurance premium
- Not taking the contract limit into consideration and evaluating the underwriting loss at a full limits loss, even if that full limit loss had a less than 10% chance of happening
- Separate evaluation of whether a contract had a 10% chance of any loss (or any underwriting loss) and whether a contract had a chance of a 10% loss at any percentile, but not evaluating whether a 10% loss happened before the 90th percentile
- Providing pass/fail results for each contract with no explanation of the reason

Part b

Candidates were expected to determine that Contract 1 does not qualify for reinsurance accounting under the "Substantially All" risk transfer provision.

Other common errors include:

- Incorrectly determining that the contract does qualify for reinsurance accounting under the "Substantially All" risk transfer provision
- Mistakenly associating 'substantially all risk' with the largest potential loss covered (assuming 150k of potential limits was 'all' despite it being <10% of happening)
- Applying other tests for risk transfer instead of the "Substantially All" provision
- Failing to fully describe the rationale for the response. For example, "Contract 1 doesn't qualify for the substantially all provision because it does not transfer substantially all the risk" was not a sufficient amount of detail.

Part c

Candidates were expected to provide a description of the calculation of the expected reinsurer deficit and how it is evaluated to determine if risk transfer exists. Candidates were required to know that risk transfer exists if ERD exceeds a specified threshold, but were not required to provide a numerical threshold.

Common errors include:

- Providing a formula for the expected reinsurer deficit, but no discussion of how it's used to determine risk transfer (no comparison to a threshold)

- Providing an incorrect formula for the expected reinsurer deficit
- Incorrectly comparing to the threshold, (e.g. saying risk transfer exists if the ERD < 1%, instead of greater)

QUESTION: SPRING 2018 EXAM 6U, QUESTION 27	
TOTAL POINT VALUE: 2	**LEARNING OBJECTIVE: E**

SAMPLE ANSWERS

Part a: 1.5 points

- NWP has increased substantially from 500 to 1500. The surplus relief from reinsurer has given the company the capacity to write more business.
- The reinsurance contact may have helped the insurer expand operations and gain more market share, evidence by premium increasing 300% year over year from 500 to 1500
- Provided surplus relief most likely due to ceding commissions seen by the decrease in loss reserve / surplus ratio
- Reinsurer may have provided underwriting guidance which helped the insurer lower the loss ratio from 110% to 90%
- Mitigate loss reserves while increasing surplus; surplus increase from 2,000 to 2,710 while net loss reserves remain stable
- Finance increasing NWP (500 to 1500) by sharing the financial burden of its reserves. Since the ceding company is using quota share reinsurance, they are able to write more by sharing premium and loss reserves.

Part b: 0.5 point

- The company has accounted for this contract as prospective reinsurance. With a retrospective contract, the loss reserved would not have been reduced by the ceded amounts
- Prospective as there is no negative write-in liability

EXAMINER'S REPORT

Candidates were expected to understand benefits of reinsurance contracts that were applicable with the balance sheet data given. Candidates were also expected to understand the difference between prospective and retrospective accounting.

Part a

Candidates were expected to identify 3 benefits the of the reinsurance contract and provide a brief explanation.

Common mistakes include:

- Providing a benefit that was not applicable to the situation, such as:
  - Improved loss ratio due to CAT protection or stabilizing loss experience; QS will usually not cap loss ratios due to a CAT event, and an XoL, CAT, or FAC treaty would be more effective in removing large swings in financial results