19. (1.75 points)

The following information is available for a property and casualty insurance company as at December 31, 2016. All amounts are in thousands of dollars ($000s).

Estimated undiscounted value of the commuted liability		4,000
Risk free rate		2%
Required margin		10%
Target capital to required capital ratio		200%
Risk cost of capital		10%
Cumulative calendar year payment pattern	Age (Months)	% Paid
	12	50%
	24	100%

Calculate the value of the commuted liability as at December 31, 2016.

CONTINUED ON NEXT PAGE

QUESTION 19	
TOTAL POINT VALUE: 1.75	LEARNING OBJECTIVE(S): C1
SAMPLE ANSWERS	

		Total	12	24
(1)	Payment Pattern		50%	100%
(2)	Incremental Payment Pattern		50%	50%
(3) = (2) * Total	Estimated Payment for each period	4,000	2,000	2,000
(4)	Payment duration		0.5	1.5
(5)	Risk free rate		2%	2%
(6) = PV of (3) @2%	PV of payment	**3,922**	1,980	1,941
(7)	Cash flow undiscounted future		4,000	2,000
(8)	Required margin		10%	10%
(9) = (7) * (8) * 2	Regulatory capital at 200%		800	400
(10)	risk cost of capital		10%	10%
(11) = (9) * (10)	cost of capital		80	40
(12)	Duration		1	2
(13)	Discount rate		2%	2%
(14) = PV of (11) @2%	Risk margin	**117**	78.4	38.4

Commuted Value (total 3 + total 14) **4,038**

EXAMINER'S REPORT
Candidates were expected to understand how to calculate the commuted value of liabilities including the present value of future payments and discounted cost of capital. Common errors include: • Discounting claim payments using the end-of-year assumption instead of the mid-year assumption without explicitly stating the assumption • Discounting cost of capital using the mid-year assumption instead of the end-of-year assumption without explicitly stating the assumption • Assuming amount of capital is equal to claim payments made during the year