STAT 472 Fall 2020

Quiz 5

November 10, 2020

1.	Matthew who is (70) buys a 21 year endowment insurance. The death benefit is 400,000 and is
	paid at the end of the year of death. Annual premiums are paid for 21 years.

The reserves for this policy are determined using the Full Preliminary Term Method. The reserve basis is mortality that follows the Standard Ultimate Life Table and i=0.05.

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c. (6 points) Calculate the Full Preliminary Term reserve at the end of 11 years.

2.	Michael who is (65) buys a whole life policy. The death benefit is 200,000 paid at the end of the year of death. Annual premiums are payable for the life of the policy.
	The gross premium is 5920.36 based on the equivalence principle.
	Reserves are based on the following assumptions:
	 i. Mortality follows the Standard Ultimate Life Table. ii. i = 0.05 iii. Expenses: Commissions of 50% of premiums year 1 and 7% year 2+ Issue Expense of 400 per policy at the start of year 1 only Maintenance expense of 52 per policy at the start of every year including the first year.
	a. (2 points) Calculate the net premium.
	b. (2 points) Calculate the net premium reserve at the end of 10 years.
	c. (2 points) calculate the net premian reserve at the end of 10 years.
	c. (4 points) Calculate the gross premium reserve at the end of 10 years.
	d. (1 point) Calculate the expense premium.
	e. (1 point) Calculate the expense reserve at the end of 10 years.