Module 3 Section 7 Exercises:

1. Each of 100 independent lives pays 4.60 for a single premium whole life insurance of 10 payable at the moment of death. Using $CF(\mu = .04, \delta = .06)$ and the normal approximation, determine the probability the insurer has sufficient funds to pay all claims.

2. Each of 10,000 independent lives age 60 purchases a fully discrete whole life insurance of 100,000. Using ILT actuarial assumptions and the normal approximation, determine the annual premium each pays such that the probability of a total loss is 1%.

3. Given a fully continuous whole life insurance of 5000 issued (x), using constant force actuarial assumptions, with $\mu = 0.02$ and $\delta = 0.04$, determine the annual premium rate such that there is a 95% probability that the present value of the loss-at-issue random variable is less than 0

4. Given a fully discrete whole life insurance of 5000, issued to a 35 year old, use ILT actuarial assumptions to determine the smallest annual premium such that there is at least a 95% probability that the present value of the loss-at-issue random variable is less than 0