Show all work for full credit, use correct notation, and clearly mark your answer.

1. (10 points) Using ILT assumptions determine the variance of the present value random variable for a whole-life insurance of 50,000 issued to (35) with benefit payable at the end of the year of death.

2. Using ILT assumptions determine
   (a) (10 points) the single net premium for a discrete 20-year endowment insurance of 10,000 issued to (40).

(b) (10 points) the variance of the present value random variable for the insurance in part (a).
3. Using ILT assumptions, determine
   (a) (10 points) the actuarial present value for a 25-year deferred whole-life
       insurance of 1,000 issued to (25) with benefit payable at the end of the year of
       death.

   (b) (10 points) the variance of the present value random variable for the insurance
       in part (a).