

176. For a special whole life insurance on (x) , you are given:

- (i) Z is the present value random variable for this insurance.
- (ii) Death benefits are paid at the moment of death.
- (iii) $\mu_{x+t} = 0.02, \quad t \geq 0$
- (iv) $\delta = 0.08$
- (v) The death benefit at time t is $b_t = e^{0.03t}, \quad t \geq 0$

Calculate $\text{Var}(Z)$.

- (A) 0.075
- (B) 0.080
- (C) 0.085
- (D) 0.090
- (E) 0.095