

**194.** For multi-state model of an insurance on  $(x)$  and  $(y)$ :

- (i) The death benefit of 10,000 is payable at the moment of the second death.
- (ii) You use the states:  
State 0 = both alive  
State 1 = only  $(x)$  is alive  
State 2 = only  $(y)$  is alive  
State 3 = neither alive
- (iii)  $\mu_{x+t:y+t}^{01} = \mu_{x+t:y+t}^{02} = 0.06, t \geq 0$
- (iv)  $\mu_{x+t:y+t}^{03} = 0, t \geq 0$
- (v)  $\mu_{x+t:y+t}^{13} = \mu_{x+t:y+t}^{23} = 0.10, t \geq 0$
- (vi)  $\delta = 0.04$

Calculate the expected present value of this insurance on  $(x)$  and  $(y)$ .

- (A) 4500
- (B) 5400
- (C) 6000
- (D) 7100
- (E) 7500