

**215.** You are given:

- (i) The conditional distribution of the number of claims per policyholder is Poisson with mean  $\lambda$ .
- (ii) The variable  $\lambda$  has a gamma distribution with parameters  $\alpha$  and  $\theta$ .
- (iii) For policyholders with 1 claim in Year 1, the credibility estimate for the number of claims in Year 2 is 0.15.
- (iv) For policyholders with an average of 2 claims per year in Year 1 and Year 2, the credibility estimate for the number of claims in Year 3 is 0.20.

Determine  $\theta$ .

- (A) Less than 0.02
- (B) At least 0.02, but less than 0.03
- (C) At least 0.03, but less than 0.04
- (D) At least 0.04, but less than 0.05
- (E) At least 0.05