

142. You are given:

- (i) The number of claims observed in a 1-year period has a Poisson distribution with mean θ .
- (ii) The prior density is:

$$\pi(\theta) = \frac{e^{-\theta}}{1 - e^{-k}}, \quad 0 < \theta < k$$

- (iii) The unconditional probability of observing zero claims in 1 year is 0.575.

Determine k .

- (A) 1.5
- (B) 1.7
- (C) 1.9
- (D) 2.1
- (E) 2.3