

**157.** You are given:

- (i) In a portfolio of risks, each policyholder can have at most one claim per year.
- (ii) The probability of a claim for a policyholder during a year is  $q$ .
- (iii) The prior density is  $\pi(q) = \frac{q^3}{0.07}$ ,  $0.6 < q < 0.8$ .

A randomly selected policyholder has one claim in Year 1 and zero claims in Year 2.

For this policyholder, determine the posterior probability that  $0.7 < q < 0.8$ .

- (A) Less than 0.3
- (B) At least 0.3, but less than 0.4
- (C) At least 0.4, but less than 0.5
- (D) At least 0.5, but less than 0.6
- (E) At least 0.6