

### Question #170

Key: B

Let  $c$  denote child;  $ANS$  denote Adult Non-Smoker;  $AS$  denote Adult Smoker.

$$P(3|c)P(c) = \frac{3^3 e^{-3}}{3!} \times 0.3 = 0.067$$

$$P(3|ANS)P(ANS) = \frac{1e^{-1}}{3!} \times 0.6 = 0.037$$

$$P(3|AS)P(AS) = \frac{4^3 e^{-4}}{3!} \times 0.1 = 0.020$$

$$P(AS|N=3) = \frac{0.020}{(0.067 + 0.037 + 0.020)} = 0.16$$