50. Solution: C

Let N be the number of major snowstorms per year, and let P be the amount paid to the company under the policy. Then $\Pr[N = n] = \frac{(3/2)^n e^{-3/2}}{n!}$, n = 0, 1, 2, . . . and

$$P = \begin{cases} 0 & \text{for } N = 0 \\ 10,000(N-1) & \text{for } N \geq 1 \end{cases}.$$

Now observe that $E[P] = \sum_{n=1}^{\infty} 10,000(n-1)\frac{(3/2)^n e^{-3/2}}{n!}$

$= 10,000\ e^{-3/2} + \sum_{n=0}^{\infty} 10,000(n-1)\frac{(3/2)^n e^{-3/2}}{n!} = 10,000\ e^{-3/2} + E[10,000\ (N-1)]$

$= 10,000\ e^{-3/2} + E[10,000N] - E[10,000] = 10,000\ e^{-3/2} + 10,000\ (3/2) - 10,000 = 7,231$.