$$\sum_{m=0}^{\infty} \frac{1}{(n+2m)!} \binom{n+2m}{n} \times \left(\begin{array}{c} \underset{p_1}{\longleftarrow} \bullet \\ \vdots \\ \underset{p_n}{\longleftarrow} \bullet \end{array} \right) \times n! \times \left(\bullet \longleftarrow \bullet \right)^m \times C_m$$