Answer on Question#38338 – Math - Discrete Mathematics

A perfect matching, every vertex of the graph is incident to exactly one edge of the matching. A perfect matching is, therefore, a matching of a graph containing $\frac{n}{2}$ edges; the largest possible, meaning perfect matchings are only possible on graphs with an even number of vertices. A perfect matching is sometimes called a complete matching or 1-factor.

The number of perfect matchings of the complete graph K_n is given by the double factorial $(n-1)!!$

What means double factorial?
- In mathematics, the product of all the odd integers up to some odd positive integer n is called the double factorial or odd factorial of n, and denoted by $n!!$

For example, $9!! = 1 \times 3 \times 5 \times 7 \times 9 = 945$.