Ques - m men and n women are to be seated in a row so that no two women sit together. If $m > n$, then show that the number of ways in which they can be seated is $\frac{m!\,(m+1)!}{(m-n+1)!}$ (1989)

Sol. m men can be seated in m! ways creating (m+1) places for ladies to sit

n ladies out of (m+1) places can be seated in ${}^{m+1}P_n$ ways

Total ways $= m! \times {}^{m+1}P_n$

$= m! \times \frac{(m+1)!}{(m+1-n)!} = \frac{(m+1)!\,(m!)}{(m-n+1)!}$