Calculating $Q(n,k)$:

We will try to develop a recursion relation to calculate $Q(n,k)$.

$Q(n,k)$: no. of partitions of 'n' such that the maximum number in each partition is 'k'.

Now, no. of partitions such that max. no. is atmost $(k-1)$ i.e, less than 'k' $= Q(n,k-1)$

i.e, the no. of partitions such that the max. no in each partition is not 'k' $= Q(n,k-1)$

no. of partitions such that The max. no is only 'k' in each partition $= Q(n-k,k)$ (because all partitions of $(n-k)$ will have only 'k' as the maximum no)

Hence, by Inclusion exclusion principle,

$$\boxed{Q(n,k) = Q(n,k-1) + Q(n-k,k)} \quad \forall\ k>1,\ n>k$$

Calculating $R(n,k)$:

no. of partitions of 'n' such that each partition has less than k numbers $= R(n,k-1)$

no. of partitions of 'n' such that each partition has only 'k' elements (each number of a partition can be atleast 1) $= R(n-k,k)$ ($\because$ each number of a partition can be atleast 1)

$\therefore$ By IEP:

$$\boxed{R(n,k) = R(n,k-1) + R(n-k,k)} \quad \forall\ k>1,\ n>k.$$

Hence, as the characteristic equation of $R(n,k)$ and $Q(n,k)$ are the same, hence $Q(n,k) = R(n,k)\ \forall\ n,k.$