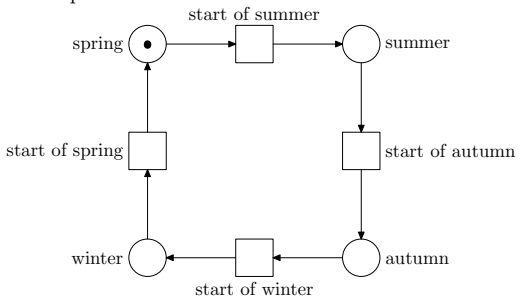
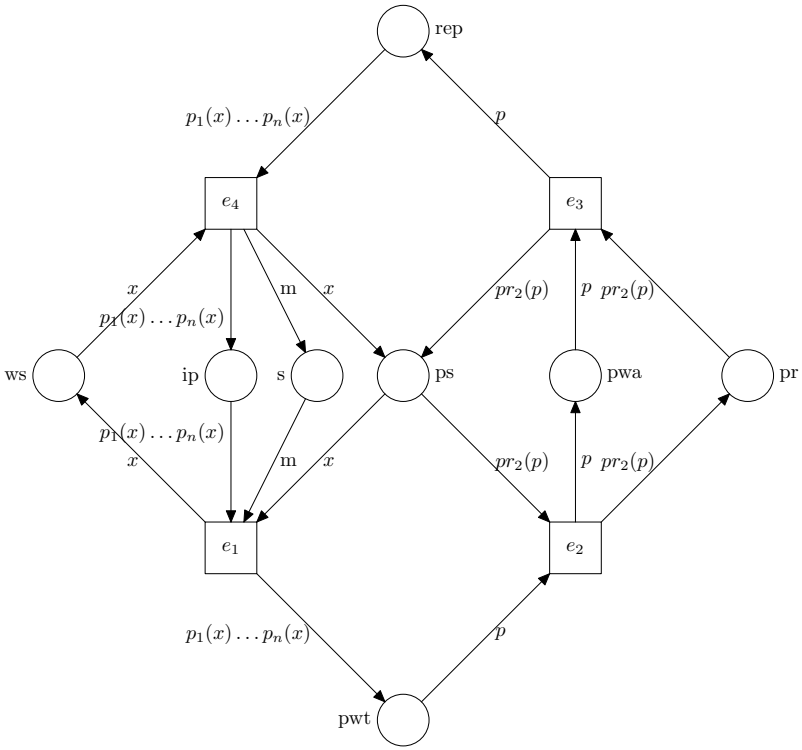
8.1 Represent the four seasons system below as a P/E-net with a minimum number of predicates and events.



8.2 In the following figure, represent the following facts:

a) Whenever a package is waiting for acknowledgement, its corresponding receiver is processing.

b) Whenever an empty package is to be returned, its sender is waiting.



The predicate names are abbreviated, the complete names are: pwt = packages with transaction, ws = waiting sender, ip = inactive packages, s = s, ps = passive sites, pwa = packages waiting for acknowledgement, pr = processing receivers, and rep = returning empty packages. The initial marking is: ip:$K \times K \setminus id$, s:m, and ps:$d_0 \dots d_n$. The function p_j is defined as follows: $p_j : K \leftarrow K \times K; d_i \mapsto (d_i, d_{i+j \bmod n})$. The set $K = \{d_0, \dots, d_n\}$, and $D_N = K \cup (K \times K) \cup \{m\}$.