Economic Order Quantity Model for Multiple Items

The coffee shops at RPI campus purchase two types of ground coffee (regular and pumpkin spice coffee) from a producer that are sold in boxes. The annual demand is 10000 boxes for the regular coffee, 4500 boxes for pumpkin spice coffee. The shops incur a fixed ordering cost of $100 per order. In addition, there is an additional cost (per order) of $25 for regular, and $20 for pumpkin spice coffee for receiving and storage. Each ground coffee type costs $30. The holding cost is 25%.

(a) Determine the optimal order size if the coffees are ordered and delivered separately.
(b) Determine the optimal order size if the coffees are ordered and delivered jointly.
(c) Compute the total relevant cost associated with the EOQ found in part (a).
(d) Compute the total relevant cost associated with the EOQ found in part (b).