

Q 2.

$$\left[ \begin{array}{l} \pi \{p.pnum, p.pname\} \\ \left( \sigma (p.dept \neq 'PM' \wedge p.pnum = c.pnum \wedge c.cnum = 'CS245') \right. \\ \left. (p_p(\text{professor}) \times p_c(\text{class})) \right) \end{array} \right]$$

$$\begin{array}{l} - \left[ \begin{array}{l} \pi \{p.pnum, p.pname\} \\ \left( \sigma (p.dept \neq 'PM' \wedge p.pnum = c.pnum \wedge c.cnum = 'CS245' \right. \\ \quad \wedge m.cnum = c.cnum \wedge m.term = c.term \wedge m.section = c.section) \\ \left. (p_p(\text{professor}) \times p_c(\text{class}) \times p_m(\text{mark})) \right) \end{array} \right] \end{array}$$