Consider the truss shown in the figure below. Each member has square cross section 5 cm x 5 cm, made of steel (Young’s modulus = 200 GPa, Poisson’s ratio = 0.25). The truss is supported by a pin joint at A and a roller at C. Truss members are connected to each other through frictionless pin joints. The truss is subjected to two forces P and Q as shown and it is known that \( P = 2Q \). The truss is considered to fail when the magnitude of stress in any of its members reaches a value of 1 GPa (compressive or tensile). Using ABAQUS, determine the location of joint B that maximizes the loads P and Q that the truss can withstand without failure. (i) Submit a plot of \( P_{\text{max}} \) vs. \( x \). Show at least 6 data points on the plot. (ii) For each point, indicate the truss member that fails first. Note: \( P_{\text{max}} \) is the value of P when one of the truss members fails.