

QUESTION 1

Figure 1 shows a rectangular frame structure. The frame is supported by a pin support at the bottom left corner and a roller support at the bottom right corner. The frame is subjected to a uniformly distributed load of 10 kN/m acting vertically downwards on the top horizontal member. The frame consists of four members: a top horizontal member, a bottom horizontal member, a left vertical member, and a right vertical member. The top horizontal member is divided into two equal segments of 3 m each by a diagonal member connecting the top left corner to the midpoint of the top horizontal member. The bottom horizontal member is divided into two equal segments of 3 m each by a diagonal member connecting the bottom left corner to the midpoint of the bottom horizontal member. The left vertical member is 4 m high, and the right vertical member is 4 m high. The total width of the frame is 6 m and the total height is 4 m .

