Q.2. A pin-jointed truss structure is loaded by a point load F (= 7071 N) as shown in Figure 2. The Young's modulus (E) is 100 GPa and the cross-sectional area (A) is 100 mm^2. Take the length (L) as 1 m.

a. Write the generalized stiffness matrix and load vector at element level. **[2 marks]**

b. Write the generalized stiffness matrix and load vector at global level. **[3 marks]**

c. Find out the unknown displacements and reaction forces **[4 marks]**

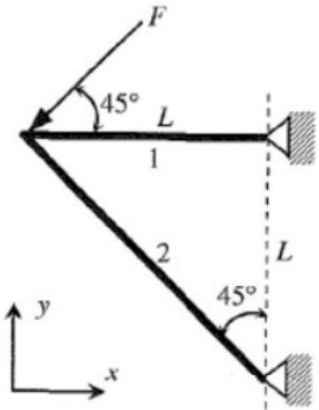

Figure 2