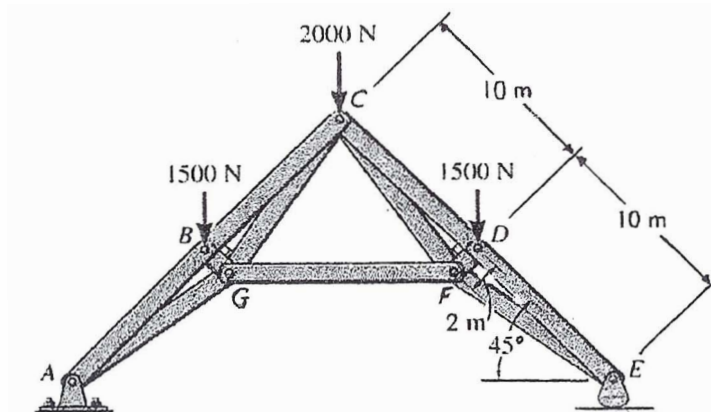
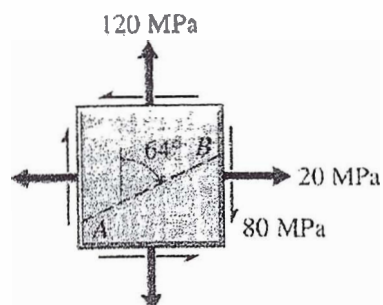


Total 100 pts

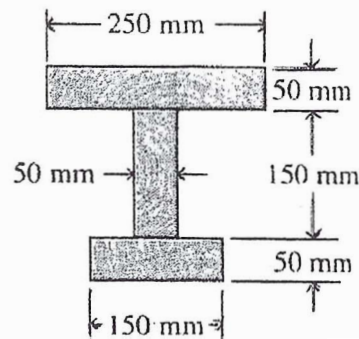
- Please use brief statements to explain the following terms in engineering mechanics/mechanics of materials: (1) Moment of inertia (2) Two force member (3) Radius of gyration (4) Rigid body (5) Simply-supported beam (6) Flexural deformation (7) Yield strength (8) Modulus of elasticity (9) Neutral Axis (10) Stress concentration (20%)
- Determine the force in members CB, CG and GF of the symmetrical truss and state if these members are in tension or compression. (20%)



- At a point in a structural member subjected to plane stress, there are normal and shear stresses on horizontal and vertical planes through the point, as shown in the figure. Use Mohr's circle to determine
 - The principle stresses and the maximum shear stress at the point. (10%)
 - The normal and shear stresses on the inclined plane AB. (10%)



4. A timber beam is simply supported and carries a uniformly distributed load of 5 kN/m over the full length of the beam. It the beam has the cross section as shown and a span of 6 m, determine (20%)
- The horizontal shearing stress in the glued joint 50 mm below the top of the beam and 1 m from the left support.
 - The horizontal shearing stress in the glued joint 50 mm above the bottom of the beam and 1/2 m from the left support.
 - The maximum horizontal shearing stress in the beam.
 - The maximum tensile flexural stress in the beam.



5. A beam is loaded and supported as shown in the following. Determine
- The reactions at supports A, B, and C. (6%)
 - The moment over the middle support. (7%)
 - The deflection at the middle of span BC. (7%)

