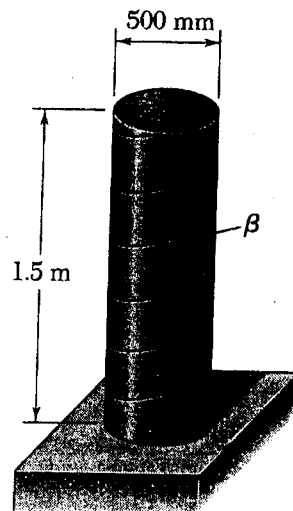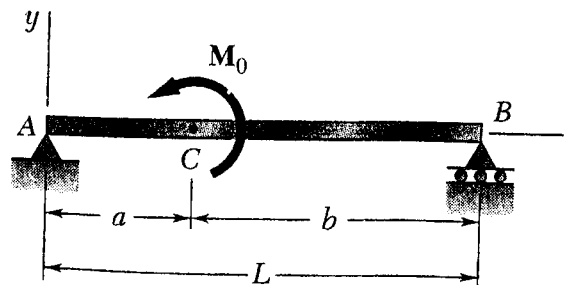本試題是否可以使用計算機：　☑可使用　，　□不可使用　　（請命題老師勾選）

1. (30pts) Please explain the following terms:
   (a) Poisson's ratio, (b) Volumetric strain, (c) Idealized elastoplastic material, (d) Elastic torsion formulas, (e) Elastic section modulus, (f) Unsymmetric bending, (g) Maximum distorsion-energy ctriterion, (h) Strain rosette, (i) Generalized Hook's law for multiaxial loading, (j) Strain energy density.

2. (20pts) The cylindrical portion of the compressed air tank shown is fabricated of 6-mm-thick plate welded along a helix forming an angle $\beta = 30°$ with the horizontal. Knowing that the allowable stress normal to the weld is 75 MPa, determine the largest pressure that can be used in the tank.

3. (20ts) For the beam and loading shown, determine (a) the equation of the elastic curve, (b) the slope at end A.

（背面仍有題目.請繼續作答）

本試題是否可以使用計算機： ☑可使用 ， □不可使用 （請命題老師勾選）

4. (30pts) For the post and loading shown, determine the principal stresses, principal planes, and maximum shearing stress at point H.