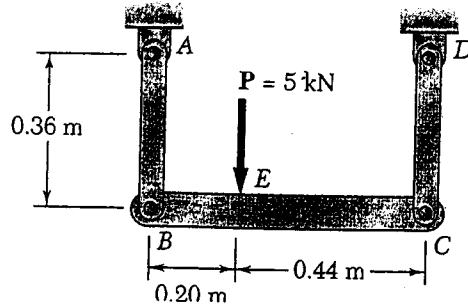


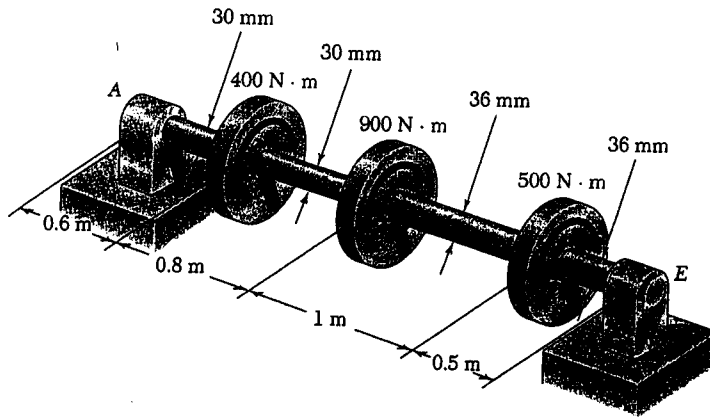
編號: F 235 系所: 工程科學系己組

科目: 材料力學

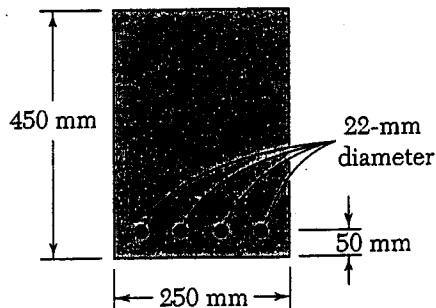
1. (30pts) Each of the links AB and CD is made of aluminum ($E = 75 \text{ GPa}$) and has a cross-sectional area of 125 mm^2 . Knowing that they support the rigid member BC, determine the deflection of point E.



2. (20pts) The torque shown are exerted on pulleys B, C, and D. Knowing that the entire shaft is made of steel ($G = 27 \text{ GPa}$), determine the angle of twist between (a) C and B, (b) D and B.



3. (30pts) Knowing that the bending moment in the reinforced concrete beam shown is $+175 \text{ kN}\cdot\text{m}$ and that the modulus of elasticity is 25 GPa for the concrete and 200 GPa for the steel, determine (a) the stress in the steel, (b) the maximum stress in the concrete.



4. (20pts) For the beam and loading shown, determine (a) the equation of the elastic curve for the cantilever beam AB, (b) the deflection at the free end, (c) the slope at the free end.

