COE-C2001 - Foundations of Solid Mechanics

Assignment for Week-2

(1) Deadline: 12:00, Monday, November 15, 2021

(2) Free format submission

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1. (a) Determine the torque T that causes a maximum shearing stress of 70 MPa in the hollow cylindrical steel shaft shown in **Fig.1**. (b) Determine the maximum shearing stress caused by the same torque T in a solid cylindrical shaft of the same cross-sectional area. (20 points)

2. The steel shaft has a diameter of 100 mm and is fixed at its ends A and B. if it is subjected to the torques shown in **Fig.2**, determine the absolute maximum shear stress in the shaft. (20 points)

3. For the beam and loading shown in **Fig.3**, draw the shear and bending-moment diagrams. (30 points)

4. For the beam and loading shown in **Fig.4**, determine the maximum bending stress on the cross section of the beam. (30 points)

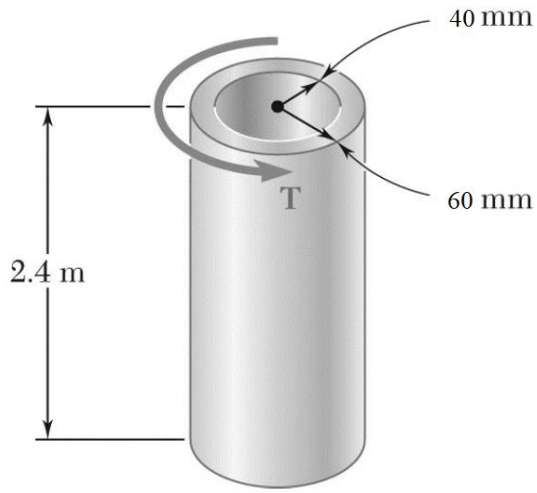

Fig.1

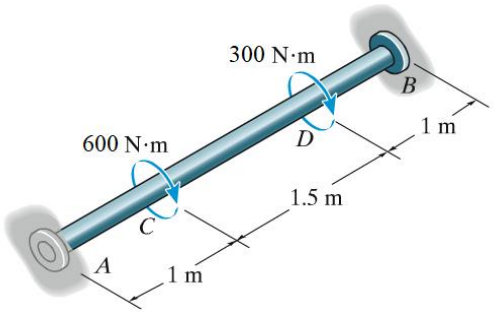

Fig.2

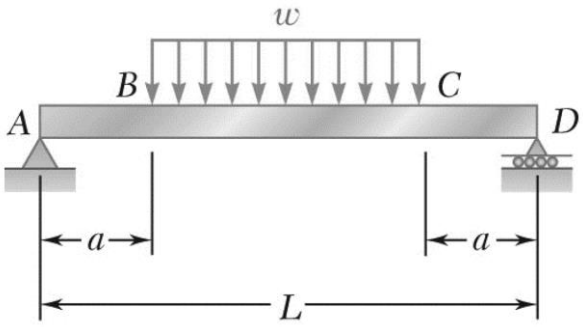

Fig.3

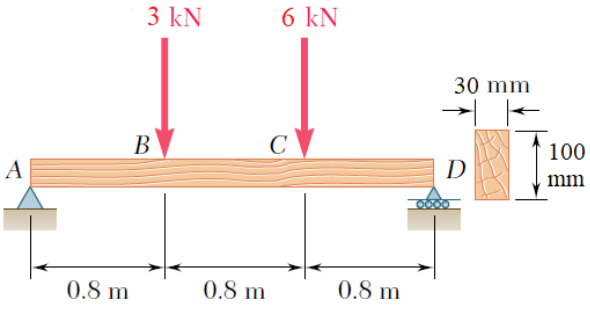

Fig.4