

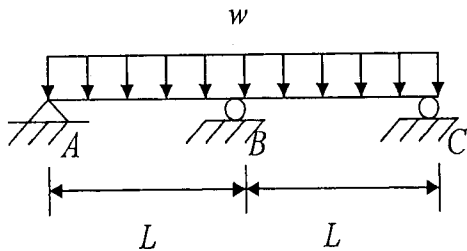
國立中央大學98學年度碩士班考試入學試題卷

所別：生物醫學工程研究所碩士班 科目：材料力學 共一頁 第一頁

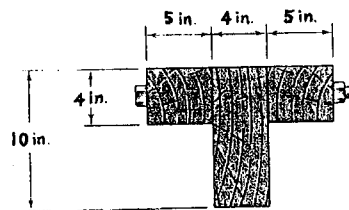
所別：機械工程學系碩士班 甲組(固力與設計)

*請在試卷答案卷(卡)內作答

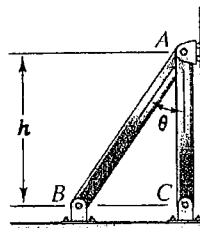
1. (a) Determine the reactions at the supports as shown. (13%)
 (b) Draw the shear and moment diagrams. (12%)
 (The flexural rigidity EI is constant. The uniform distributed load is w . L is the distance between two supports.)



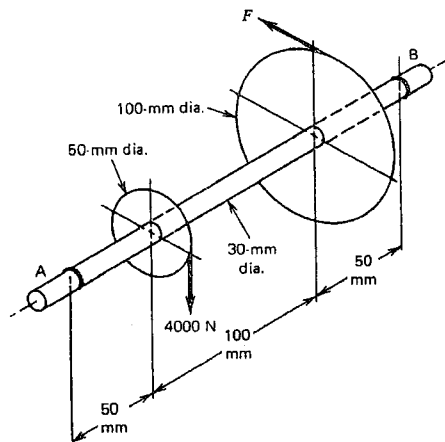
2. Three planks are connected as shown by bolts of $3/8$ in. diameter spaced every 6 in. along the longitudinal axis of the beam. For a vertical shear of 2.5 kips, determine the average shearing stress in the bolts. (25%)



3. Bars AB and AC each have cross-sectional area A and modulus of elasticity E . If a downward force F is applied at A , what is the resulting downward displacement of point A ? (25%)



4. A solid round shaft with a diameter of 30 mm is simply supported by self-aligning bearings at points A and B. Attached to the shaft are two chain sprockets that are loaded as shown. Treat this as a static loading problem. The force F needs to be determined from the condition of static equilibrium. Determine the maximum principal stress in the shaft. (25%)



參考用