

淡江大學九十四學年度碩士班招生考試試題

系別：航空太空工程學系

科目：材料力學

准帶項目請打「V」	
✓	簡單型計算機
本試題共 2 頁	

本試題雙面印製

1. A stepped circular shaft is in equilibrium under the torques applied to the pulleys fastened to it, as shown in Figure 1. Calculate the maximum shearing stress in the shaft. (20%)

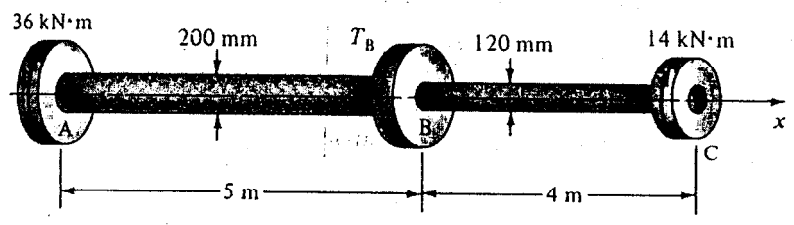


Figure 1

2. Calculate the vertical and horizontal deflections of point B of the truss shown in Figure 2. Let $A_{AB} = 2A_{BC} = 0.004 \text{ m}^2$ and $E = 70 \text{ GPa}$. (20%)

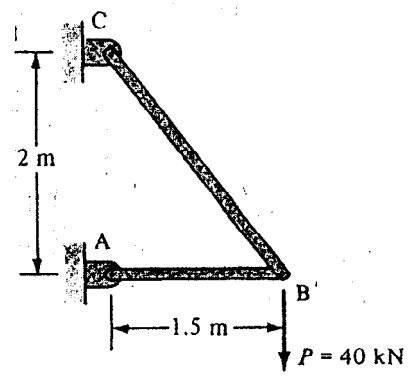
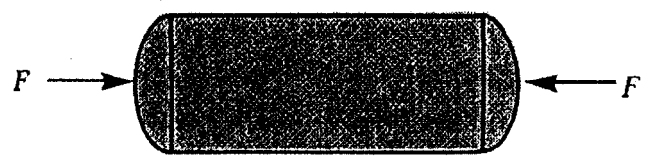


Figure 2

3. A thin-walled cylindrical tank of inside radius r is subjected simultaneously to internal gas pressure p and a compressive force F at the ends. What should be the magnitude of the force F in order to produce pure shear in the wall of the cylinder? (20%)



注意背面尚有試題

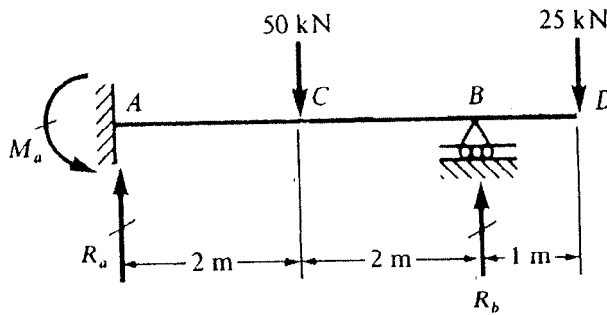
淡江大學九十四學年度碩士班招生考試試題¹⁻¹⁻²

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4. Calculate the reactions R_a , R_b , and M_a for the propped cantilever beam with an overhang.
(20%)



5. A beam ABC supports a concentrated load $P = 4.0$ KN at the end of the overhang. The cross section of the beam is T-shaped with dimensions as shown. Calculate the maximum tensile stress σ_t and maximum compressive stress σ_c due to the load P . (20%)

