淡江大學 101 學年度轉學生招生考試試題

系別：土木工程學系三年級　　　　　科目：工程力學(含靜力學、材料力學)

考試日期：7 月 17 日(星期二) 第 3 節　　　　本試題共　4　大題，　1　頁

1. Determine the force in each member of the truss as shown in Fig. 1.　　25%

2. Plot the shear and bending-moment diagrams for the beam shown in Fig. 2　　20%

3. A two-element shaft AC (G = 80 GPa) is subjected to external torques at sections B and C as shown in Fig. 3. The outer diameter of the shaft is $d_1 = 60$ mm. The inner diameter of element 2, $d_{i2} = 50$ mm. Determine: (a) the maximum shear stresses in sections AB and BC,
　　　　　　　　(b) angle of twist at the end C.　　25%

4. A tee-beam has the cross-sectional dimensions (Fig. 4) is used as a cantilever beam to support loads as shown in Fig. 2. Determine:　　30%
　　　(a) the neutral axis of the cross section,
　　　(b) the maximum tensile and compressive flexural stresses at the cross section,
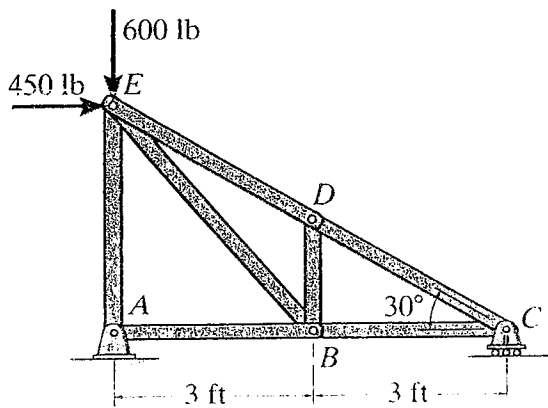　　　(c) the maximum and minimum shear stresses in the web of the cross section.
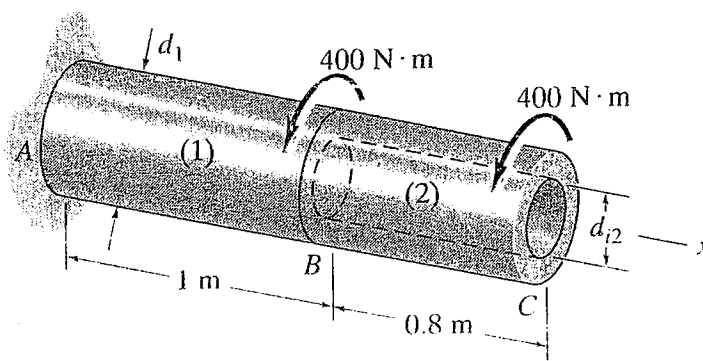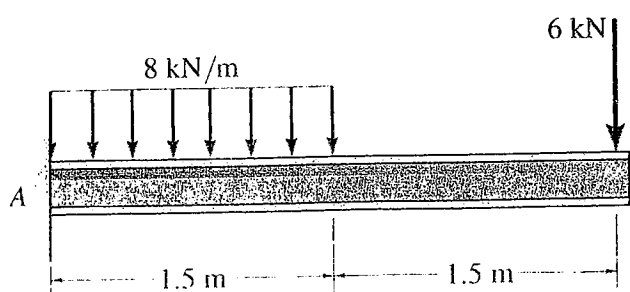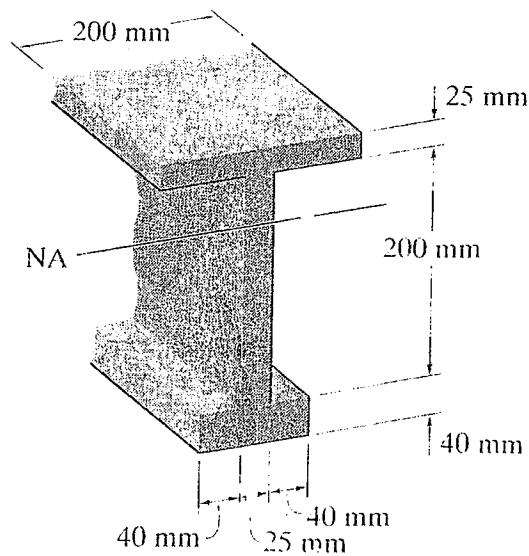

Fig. 1

Fig. 3

Fig. 2

Fig. 4