淡江大學九十四學年度碩士班招生考試試題 $^{63-1}$

系別：土木工程學系　　　科目：工程力學（靜力學、材料力學）

准帶項目請打「∨」	
√	簡單型計算機

本試題共　1　頁

1. For the frame and loading shown in Fig. 1.　　　　20%
   (a) Determine the components of all forces acting on member ABE,
   (b) Determine the internal forces at point J.

2. A beam of T-section is supported and loaded as shown in Fig. 2.　　20%
   (a) Determine the maximum tensile and compressive stresses,
   (b) Determine the maximum shear stress in the web.

3. A cantilever beam AB of length L has a fixed support at A and a spring support at B as shown in Fig. 3. The spring behaves in a linearly elastic manner with stiffness k.　　　　20%
   Use the second-order differential equation of the deflection curve to calculate the downward displacement of end B of the beam.

4. A pole of hollow circular cross section as showed in Fig. 4 supports a sign. The pole weighs 500 lb and the sign weighs 400 lb. The wind pressure against the sign is 0.5 psi.　　　　25%
   Determine the maximum tensile, compressive, and shear stresses at point A, which is on the outer surface of the pole at the front of the pole.

5. Explanation:　　　15%
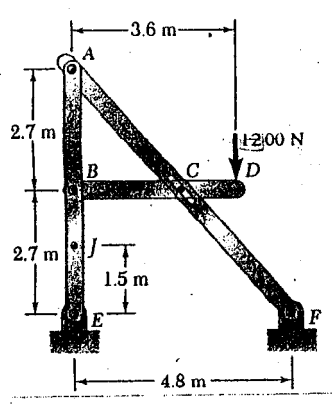   (a) Buckling
   (b) Offset yield stress
   (c) Relaxation

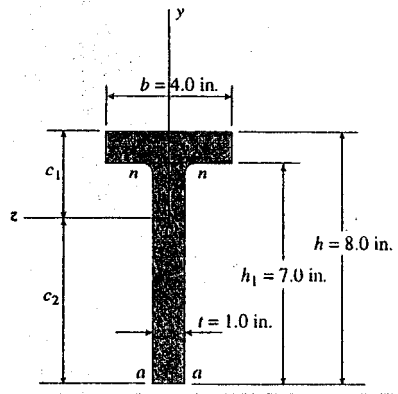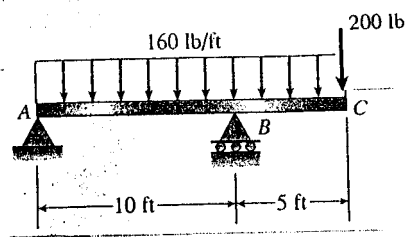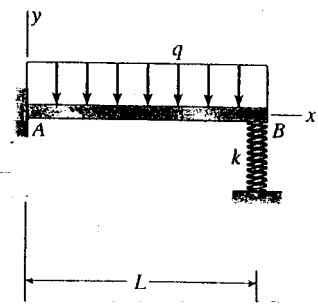Fig. 1

Fig. 2

Fig. 3

Fig. 4