淡江大學九十二學年度碩士班招生考試試題

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「○」否則打「×」
簡單型計算機　　○

本試題共　1　頁

1. Explanations:　　　15%

    (a)　Bulk modulus of elasticity

    (b)　Slenderness ratio

    (c)　Creep

2. A beam of T section is supported and loaded as shown in the figure.
    Determine the maximum tensile and compressive stresses in the beam.　　25%

3. A simple beam of wide-flange cross section is supported and loaded as
    shown in the figure.

    ($q = 3.5$ k/ft, L = 10 ft., h = 10.5 in., b = 7 in., and $t_f = t_w = 0.4$ in.)

    (a)　Calculate the maximum shear stress on the cross section A-A located at
    distance d = 2.5 ft from the end of the beam.

    (b)　Calculate the shear stress at point B on the cross section. Point B is
    located at a distance a = 2.0 in from the edge of the lower flange.　　20%

4. A compound beam ABCDE consists of two parts connected by a hinge at C.
    Determine the deflection at the free end E due to the load P acting at that point.　　20%
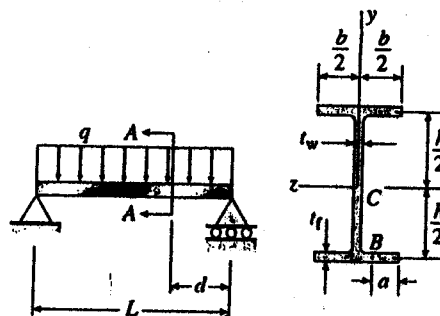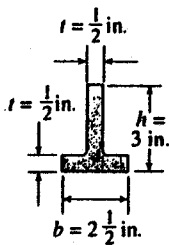
5. A beam rests on simple supports at points A and B and is supported by a
    cable at point C. Prior to the application of the uniform load, there is no
    force in the cable nor is there any slack in the cable. Find the magnitude of
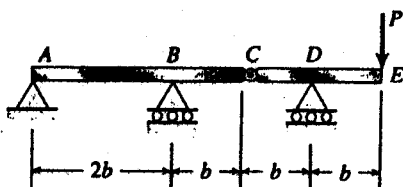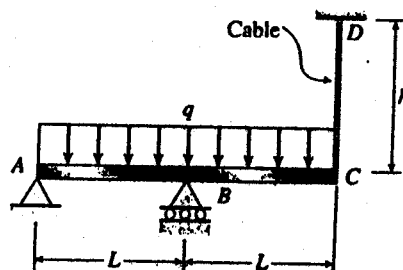   the force in the cable when the uniform load is applied.　　20%
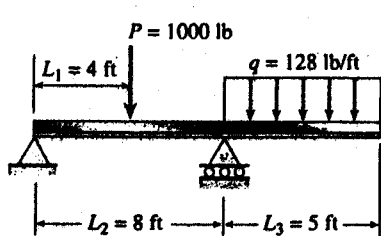
problem 2

problem 3

problem 4

problem 5