1.　Explain the following terms: (25%)
   A.　Shear Modulus
   B.　Yield strength
   C.　Moment of Inertia
   D.　Strain energy
   E.　Buckling

2.　What is the difference between normal strain and shear strain? (15%)

3.　Design an experiment to measure the Poisson's ratio of a material? (10%)

4.　An element in plane stress is shown in Fig. 1. Determine (a) the principal stress and principal plane, (b) the stresses on an element rotate through an angle of 45° and (c) the maximum shear stresses. (25%)

5.　A loaded femur (大腿骨) is simplified as a 2D structure shown in Fig. 2. Compute the stress distribution on section BB. (Assume the necessary parameters by yourself.) (25%)
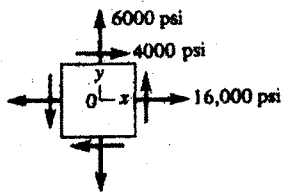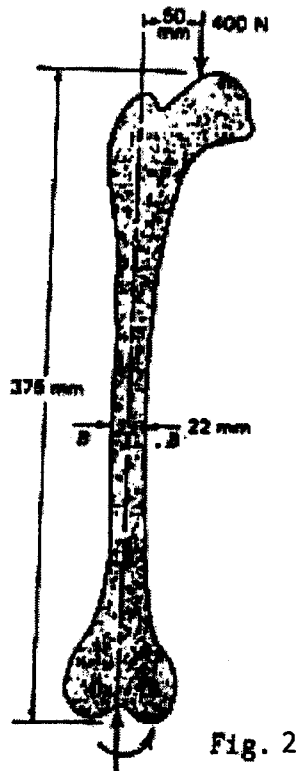

Fig. 1

Fig. 2