

淡江大學八十七學年度碩士班入學考試試題

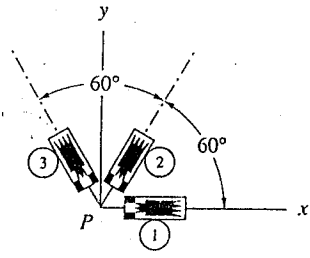
系別： 航空太空工程學系

科目： 材料力學

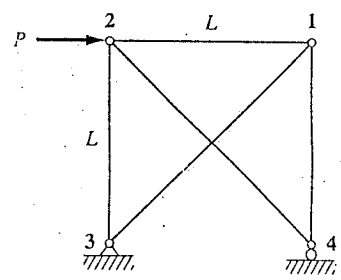
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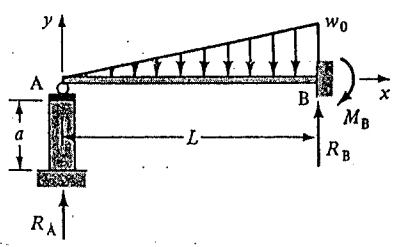
1. On the surface of an isotropic aluminum plate ($E = 10 \times 10^6$ psi, $\nu = 0.25$), the state of plane stress in the vicinity of point P is $\sigma_x = 15,000$ psi, $\sigma_y = -10,000$ psi, and $\tau_{xy} = 5000$ psi. What is the strain in each gage of the strain gage rosette bonded to the plate at P?
(25%)



2. All members of the truss have the same E and A. Please calculate the horizontal displacement at node 2.
(25%)



3. A cantilever beam AB with a triangularly distributed load of maximum intensity w_0 is supported by a bearing block at A. Assume EI to be the flexural rigidity of the beam and $E_a I_a$, the axial rigidity of the block. Determine (a) the reactions (b) the deflection at midspan of the beam.
(25%)



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4. The stresses on an equilateral triangular element of material in plane stress, please find σ_x , σ_y , and τ_{xy} . (25%)

