

試題共計五題，每題二十分。

1. Determine the maximum tensile and compressive bending stresses developed in the beam shown in Fig.1. The cross section has the given properties. Neglect the weight of the beam.
2. Draw shear diagram, moment diagram and deflection curve consistent with these loadings of the beam shown in Fig.2. Neglect the weight of the beam AG.
3. For the pin-connected frame shown in Fig.3, determine the maximum normal stress in member BD if its cross section is 100mm wide by 400mm deep. Neglect the weights of the members.
4. Derive the Euler solution (i.e. buckling load) for a hinged-hinged column as shown in Fig.4.
5. A bar is bent into a circular arc of radius  $R$  and held in a horizontal plane as shown in Fig.5. Find the deflection at A caused by a vertical load  $P$  applied there. Neglect the weight of the bar.

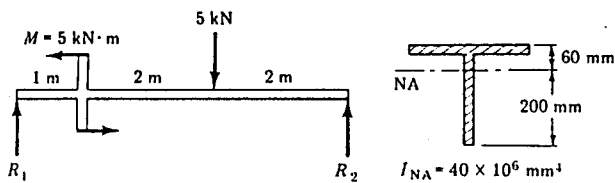


Fig. 1

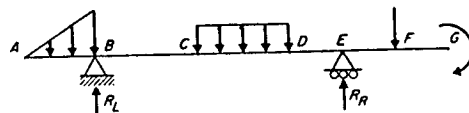


Fig. 2

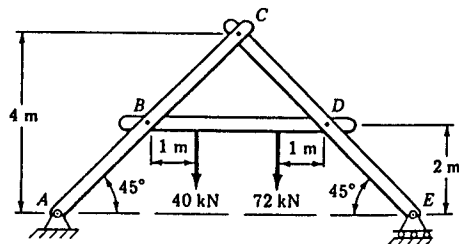


Fig. 3

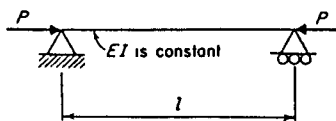


Fig. 4

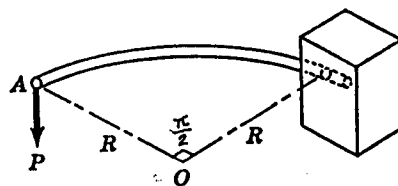


Fig. 5