

5- When immersed in a uniform stream V, a heavy rod hinged at A will hang at Pode's angle  $\theta$ . Assume that the cylinder has normal drag coefficient  $C_{DN}$  and tangential coefficient  $C_{DT}$  that relate the drag forces to  $V_N$  and  $V_T$ , respectively. Derive an expression for Pode's angle as a function of the flow and rod parameters. Find  $\theta$  for a steel rod, SG = 7.56, L = 40 cm, D = 1 cm, hanging in sea-level air at V = 35 m/s.

