

本試題是否可以使用計算機： 可使用， 不可使用（請命題老師勾選）

1. A four-bar truss (Fig. 1) consists of mild steel bars of equal area oriented  $\pm 30^\circ$  and  $\pm 60^\circ$  from the vertical. Calculate the vertical deflection of point E and the load  $P^*$  at the instant where all four bars reach their yield points. At what value  $P^*$  will the first bar become plastic? (25%)

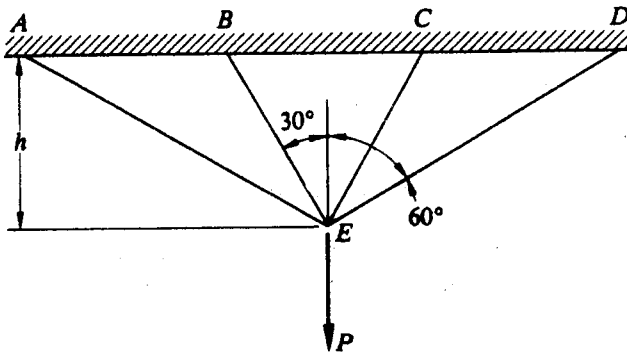


Fig. 1

2. A silty sand has a consolidated-undrained friction angle of  $22^\circ$  and a drained friction angle of  $32^\circ$  ( $c' = 0$ ). If a consolidated-undrained test on such a soil is conducted at a chamber confining pressure of  $1.2 \text{ ton/ft}^2$ , what will be the major principal stress (total) at failure? Also, calculate the pore pressure that will be generated in the soil specimen at failure. (25%)

3. 試伸述我國交通問題之主因，及其對策。 (25%)

4. 試以鋼筋混凝土為例，說明吾人如何進行品質保證之相關作業。

(25%)