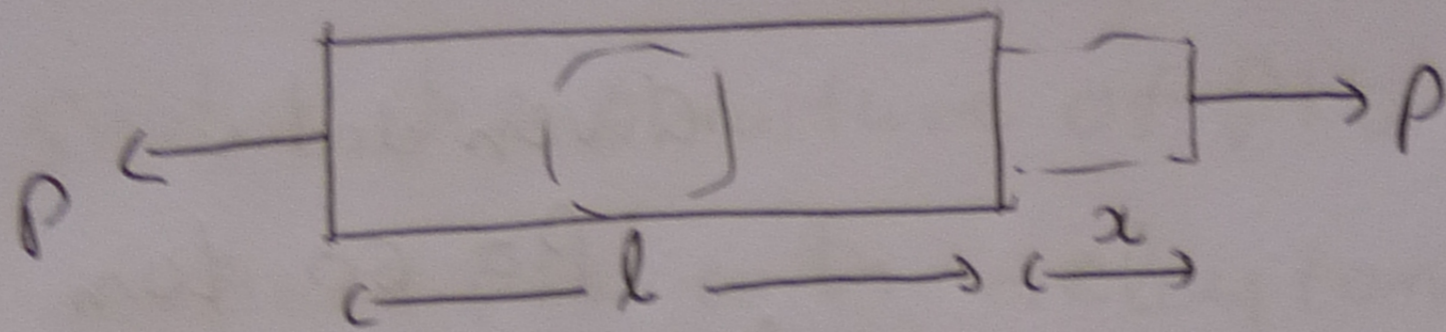


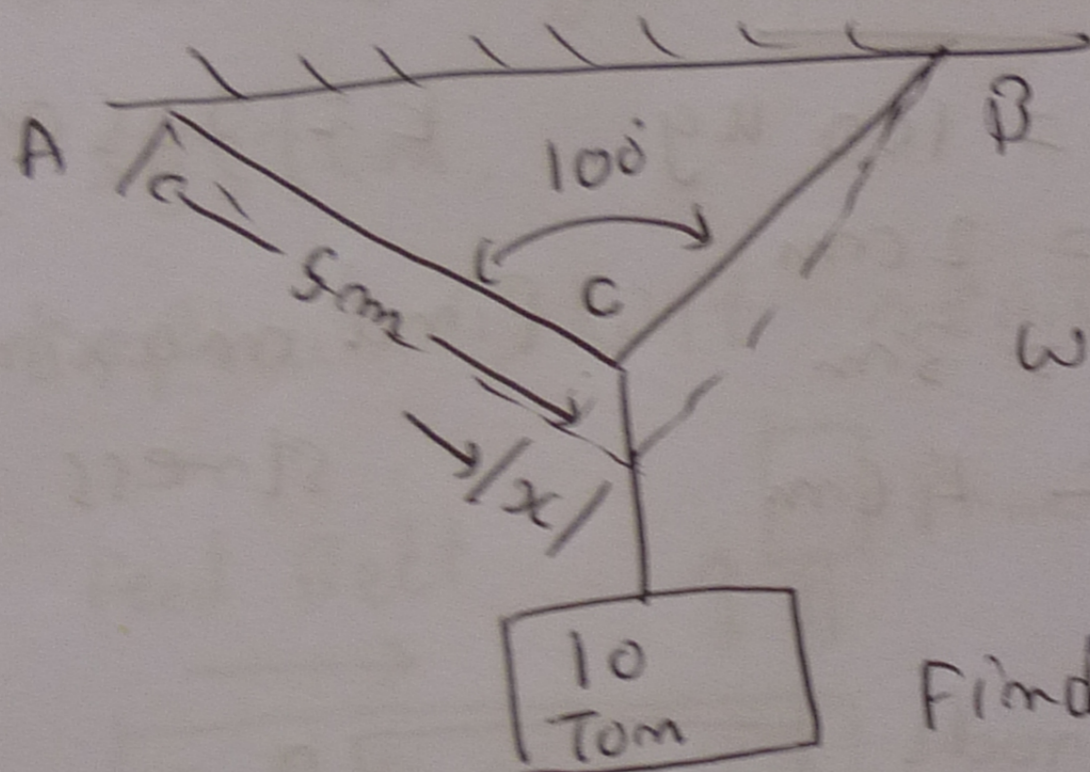
Test

(1)



Tensile load $\Rightarrow P = 15,000 \text{ kg}$
 steel rod diameter $d = 2 \text{ cm}$
 Find stress

(2)



$l = 5 \text{ cm}$

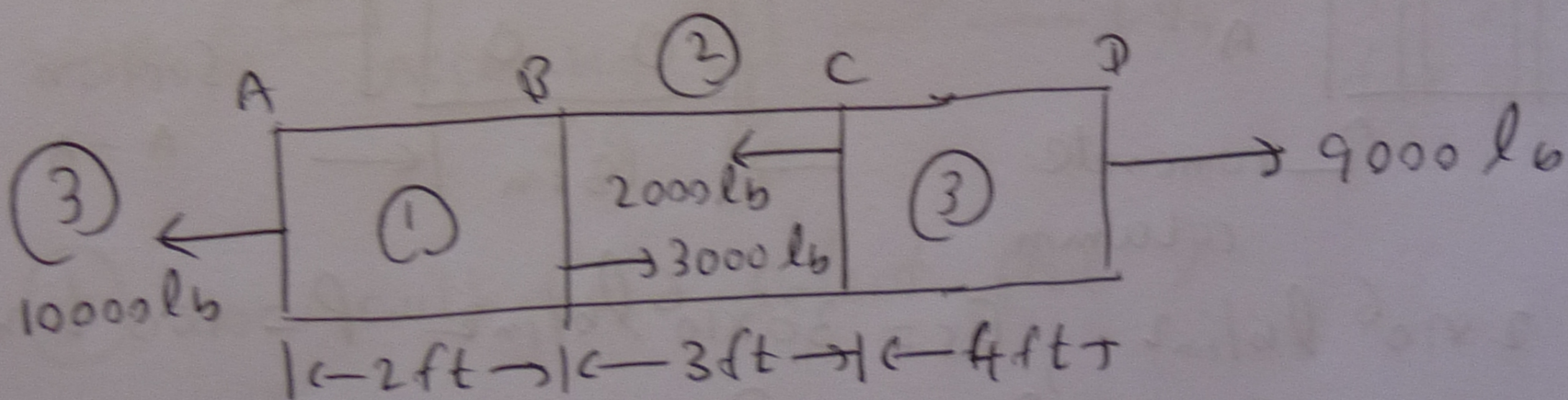
working stress $\sigma = 560 \text{ kg/cm}^2$

$E = 2.1 \times 10^6 \text{ kg/cm}^2$

Find diameter of rod = ?

Elongation $x = ?$

(3)



The given steel bar has C.S.A 1 in^2

Forces are shown in figure.

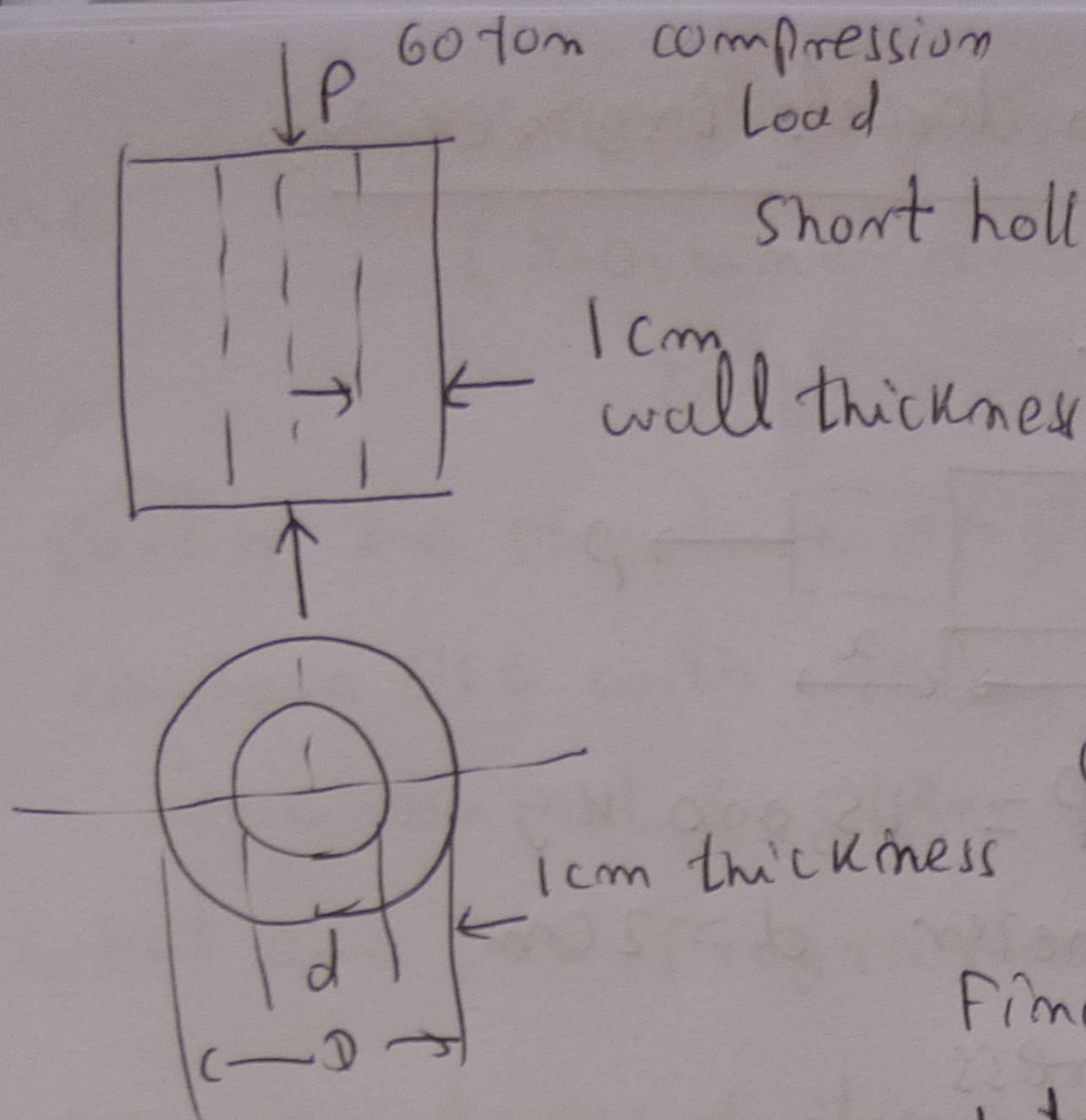
$E = 30 \times 10^6 \text{ lb/in}^2$

Find the stress in each portion & total elongation

(4)

sketch the load or stress VS strain diagram and indicate the limits & points

(5)



Short hollow cast iron cylinder

1 cm wall thickness

Given data

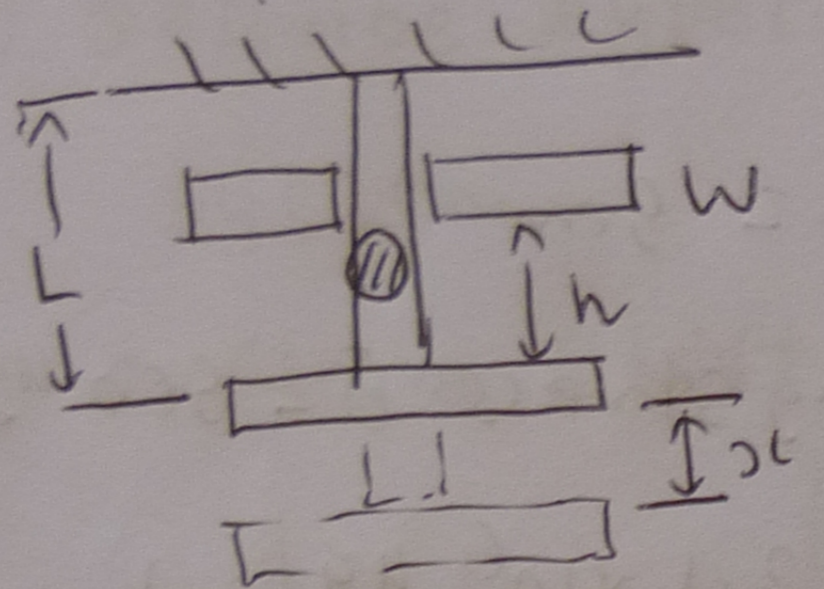
$P = 60 \text{ ton}$

ultimate stress = 5400

Safety factor = 3 kg/cm^2

Find outside diameter 'D'

(6)



Given data

$W = 100 \text{ kg}$

$E = 205000 \text{ N/mm}^2$

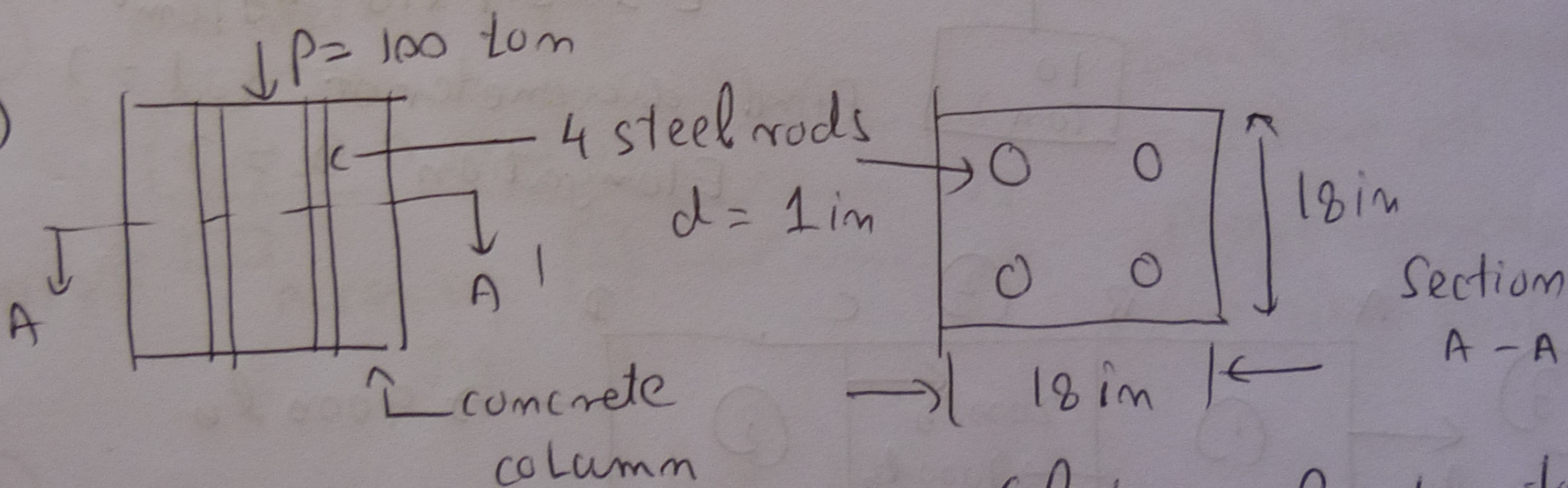
$d = 2 \text{ cm}$

$L = 3 \text{ m}$

$h = 4 \text{ cm}$

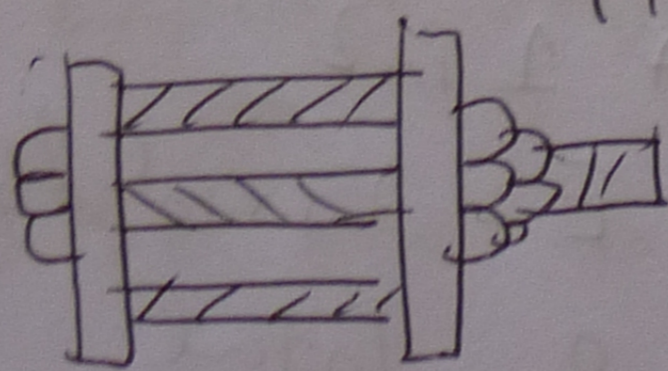
Find maximum stress

(7)



$E_c = 2 \times 10^6 \text{ lb/in}^2$ $E_s = 30 \times 10^6 \text{ lb/in}^2$ $P = 100 \text{ ton}$
 Find δ_s & δ_c

(8)



Steel rod $d_s = 25 \text{ mm}$

Brass tube external $D_B = 35 \text{ mm}$

Internal $d_B = 25 \text{ mm}$

$\delta_s = 100 \text{ kg/cm}^2$

$\Delta t = 60^\circ \text{C}$, Find final stress

(9) Explain (a) modulus of rigidity (b) Shear strain energy

(10) Write the equations for compound bars.