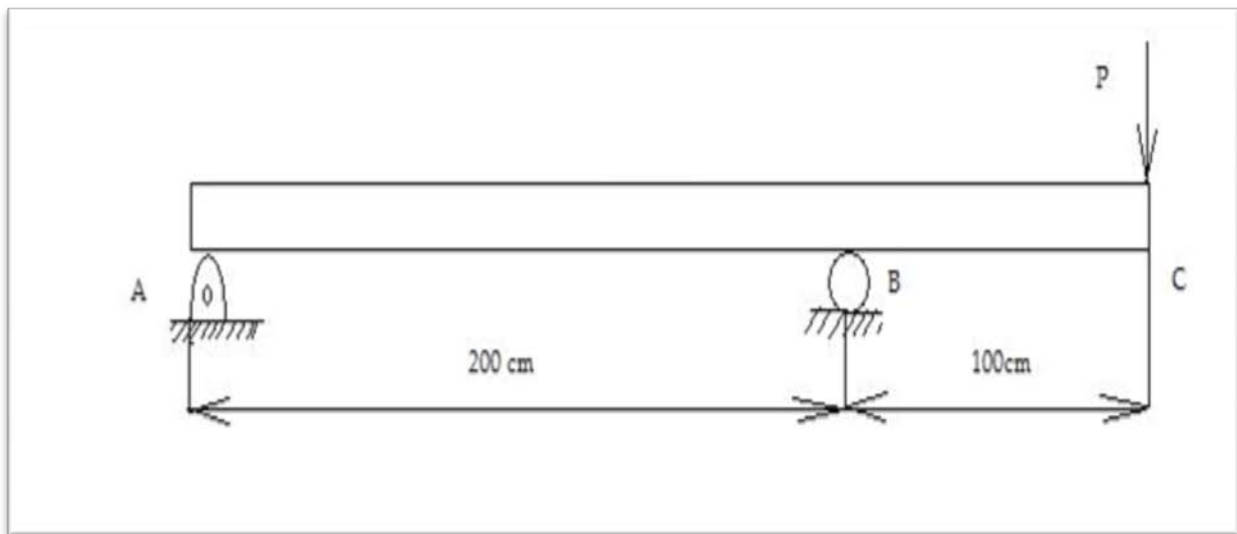


## CADventure

Solve the two simple questions given below and send in the answers as soon as possible:

Q.1 A simply supported beam with overhang is loaded as shown in the figure. The beam is made of cast iron ( $E = 2.1 \times 10^6$ ) and has a T section, the flange of which is 10 cm wide and stem of which is 7.5 cm big. Flange and stem are each 2.5 cm wide.



Calculate:

- 1) Magnitude of the shear force in terms of P at B
- 2) Magnitude of bending moment in terms of P at B
- 3) The safe value of P if the allowable stresses for CI are
  - a) 500 kg/cm<sup>2</sup>, in tension
  - b) 750kg/cm<sup>2</sup>, in compression

Q.2 Two Shafts A and B are connected as shown in the figure with one end of A fixed to the wall. The torque is applied on both the shaft; Torque on A being twice that of B but in opposite direction. Length of Shaft A is  $L_1$ ; Length of Shaft B is  $L_2$ ; diameter of A is  $d_1$ ;

Diameter of Shaft B is  $d_2$  ( $d_1 > d_2$ ). Find the expression of the deflection produced at the junction of the shafts.

