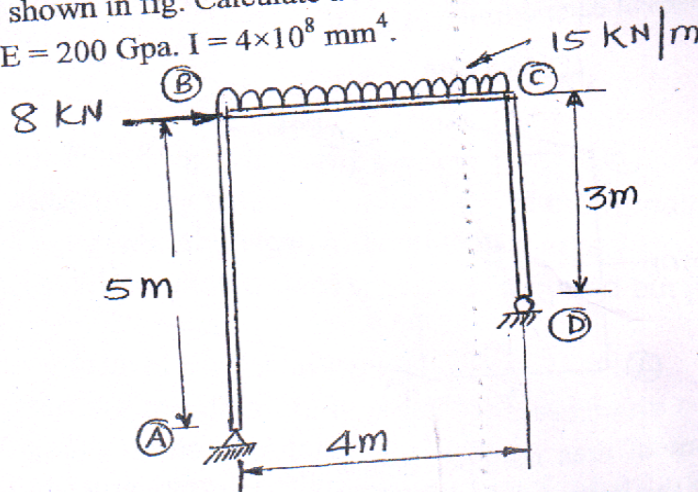
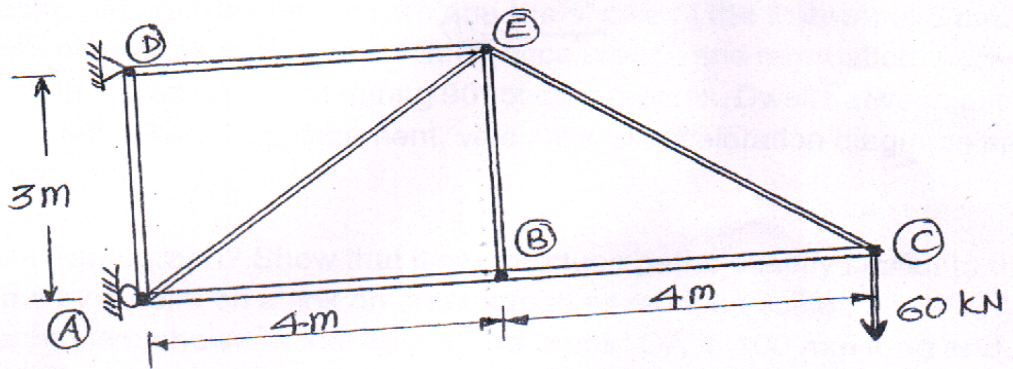


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5. (a) Using unit load method or Castigliano's second theorem, for the rigid jointed frame shown in fig. Calculate a horizontal displacement of roller support at D. 10  
Take  $E = 200 \text{ Gpa}$ ,  $I = 4 \times 10^8 \text{ mm}^4$ .



- (b) Using unit load method or any other energy method, find the vertical deflection of joint C of a pin jointed truss loaded and supported as shown in fig. Take  $AE = \text{Constant}$  for all members. 10



6. (a) Using Macaulay's method determine maximum deflection and slope at A and B. Take  $EI = \text{Constant}$ . 06

