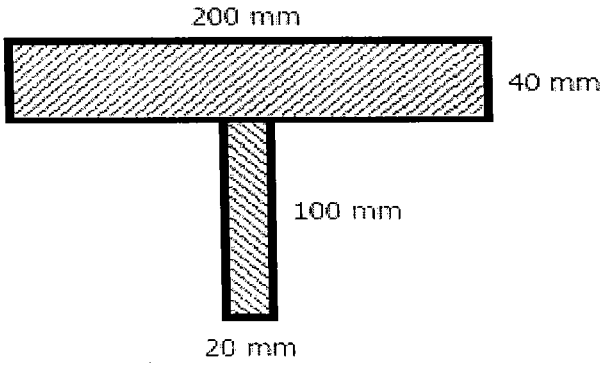
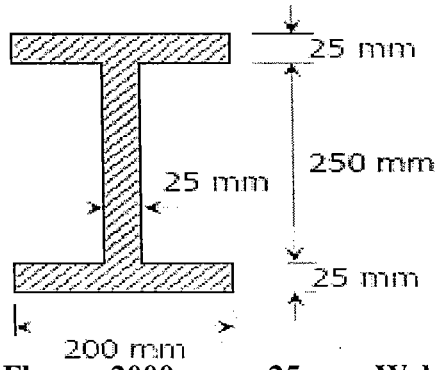
Strength Materials -1 Assignment in unit 4&5

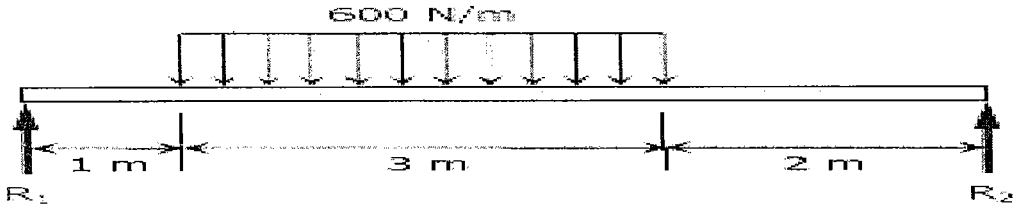
1) The T section shown in Fig. is the cross-section of a beam formed by joining two rectangular pieces of wood together. The beam is subjected to a maximum shearing force of 60 kN. Show that the NA is 34 mm from the top and the $I_{NA} = 10.57 \times 10^6$ mm^4. Using these values, determine the shearing stress (a) at the neutral axis and (b) at the junction between the two pieces of wood.



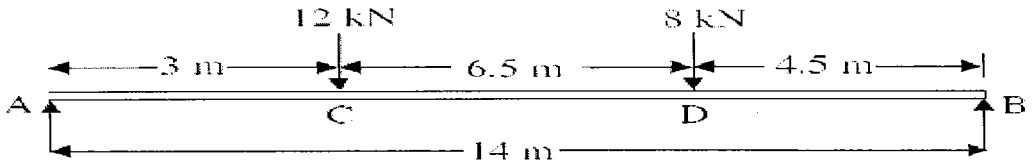
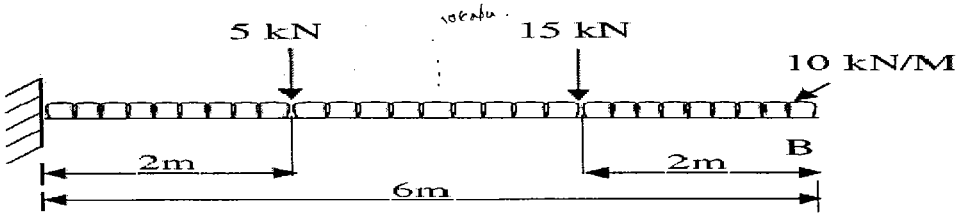


2) An I-section has the following dimensions: Fla ge: 2000mm x 25mm, Web: 250mm x 25mm The maximum shear stress developed in the beam is 16.8 N/m2. Find the shear force to which the beam is subjected.

3) Compute the midspan Deflectin, slope at the supports for the beam loaded as shown in Fig.3 . Take EI is constant.



4)A horizontal steel girder having uniform cross-section is 14 m long and is simply supported at its ends. It carries two concentrated loads as shown in Figure 2. Calculate the deflections of the beam under the loads C and D. Take E = 250 GPa and I = 150x106mm4.



5) Find the angle of rotation and deflection at the free end of cantilever beam as shown in Fig