

# Assignment No#2

Name = Khalid Khan

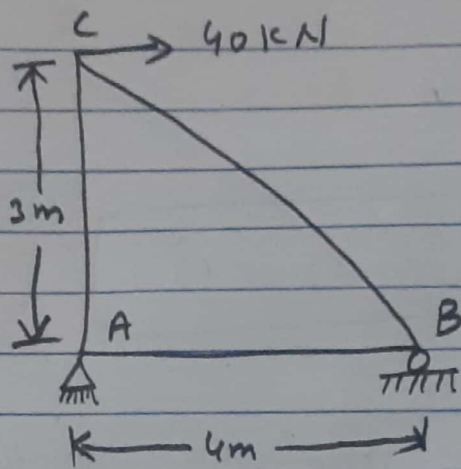
FD = 7936

Section = B

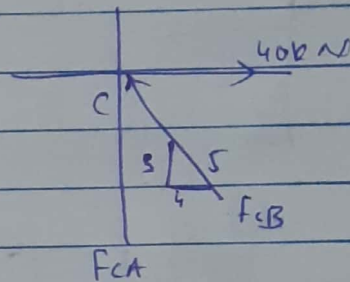
Subject = Structure  
Analysis.

Date = 10/7/2020

Q = 1 :-



First of all analyse  
Joint C



$$\sum F_x = 0$$

$$40 - F_{CB} \left(\frac{4}{5}\right) = 0$$

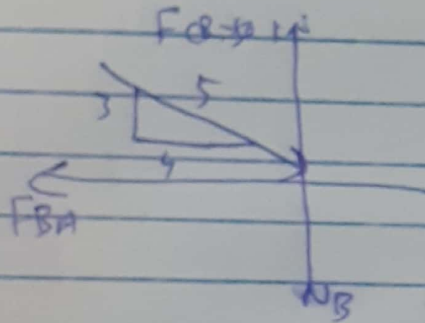
$$F_{CB} = 50.0 \text{ kN (C)}$$

$$+\uparrow \sum F_y = 0$$

$$50 \left( \frac{3}{5} \right) - F_{CA} = 0$$

$$F_{CA} = 30.0 \text{ kN (T)}$$

Now we analyse joint (B)



$$+\rightarrow \sum F_x = 0 \quad 50 \left( \frac{4}{5} \right) - F_{BA} = 0$$

$$F_{BA} = 40.0 \text{ kN (T)}$$

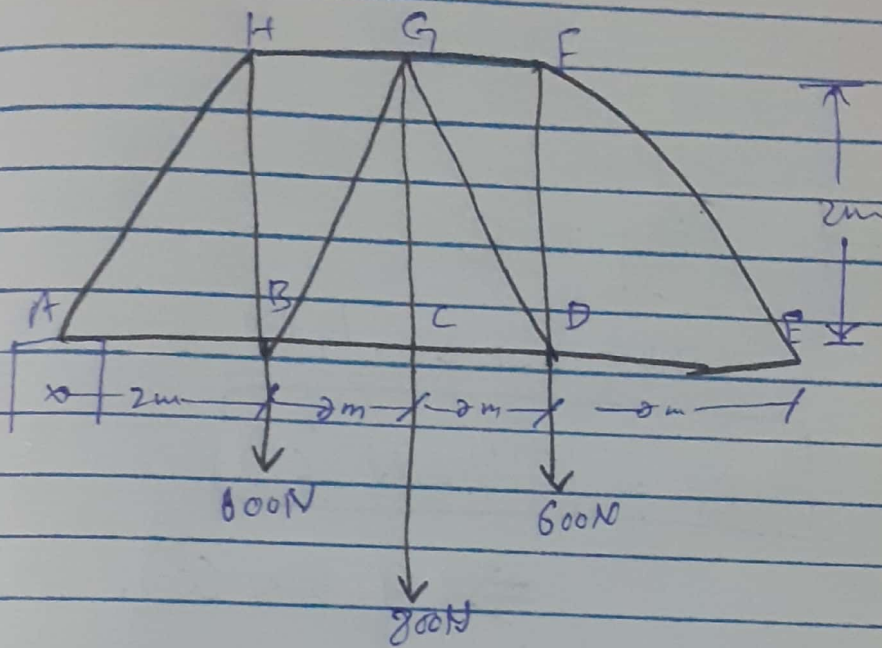
$$+\uparrow \sum F_y = 0$$

$$N_B - 50.0 \left( \frac{3}{5} \right) = 0$$

$$N_B = 30.0 \text{ kN}$$

Q = 21 -

Given that:-

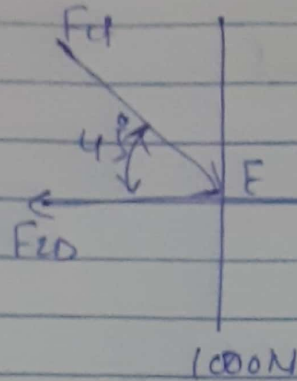


$$\sum + \Sigma M_A = 0$$

$$E_y (8) - 600(2) - 800(4) - 600(6) = 0$$

$$E_y = 1000 \text{ N.}$$

Now we Analyse joint (E)



$$+\uparrow \sum F_y = 0;$$

$$1000 - F_{EC} \sin 45^\circ = 0$$

$$F_{EC} = 1414.21 \text{ N (c)}$$

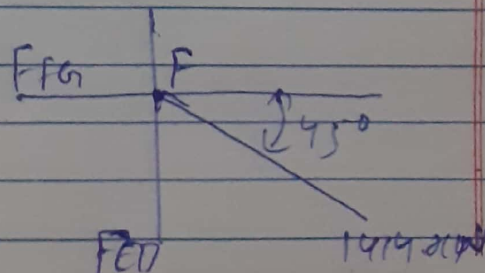
$$\Rightarrow 1.411 \text{ kN (c)}$$

$$\rightarrow \sum F_x = 0;$$

$$1414.21 \cos 45^\circ - F_{ED} = 0$$

$$F_{ED} = 1000 \text{ N (t)} = 1 \text{ kN (t)}$$

Joint (F)



$$\rightarrow \sum F_x = 0;$$

$$F_{FG} - 1414.21 \cos 45^\circ = 0$$

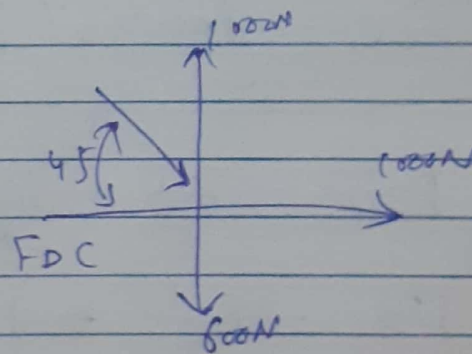
$$F_{FG} = 1000 \text{ N (C)} = 1 \text{ kN (C)}$$

$$+\uparrow \sum F_y = 0;$$

$$1414.21 \sin 45^\circ - F_{FD} = 0$$

$$F_{FD} = 1000 \text{ N (T)} = 1 \text{ kN (T)}$$

Joint (D)



$$+\uparrow \sum F_y = 0;$$

$$1000 - 600 - F_{DG} \sin 45^\circ = 0.$$

$$F_{DG} = 565.69 \text{ N (C)} = 566 \text{ N (C)}$$

$$\pm \rightarrow \sum F_x = 0:$$

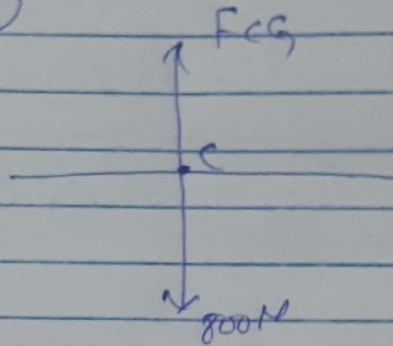
$$1000 + 565.69 \cos 45^\circ - F_{DC} = 0$$

$$F_{DC} = 1400 \text{ N (T)} = 1.4 \text{ kN (T)}$$

Joint C

$$\uparrow \sum F_y = 0$$

$$F_{CG} - 800 = 0$$



$$F_{CG} = 800 \text{ N (T)}$$

Due to Symmetry

$$F_{BC} = F_{DC} = 1.4 \text{ kN (T)}$$

$$F_{HB} = F_{ED} = 1.0 \text{ kN (T)}$$

$$F_{BG} = F_{DG} = 566 \text{ kN (T)}$$

$$F_{HG} = F_{FG} = 1.0 \text{ kN (T)}$$

$$F_{AH} = F_{EF} = 1.41 \text{ kN (T)}$$

$$F_{AB} = F_{ED} = 1.0 \text{ kN (T)}$$