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Section : A

DEPH : B.S.C (C) Engr.

Subject: Strucher Analysi

Assigmnt : 01

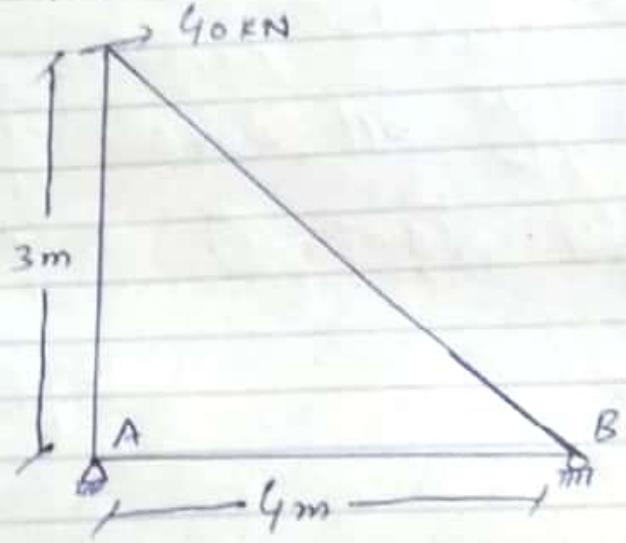
Date : 11\7\020

Question # 01

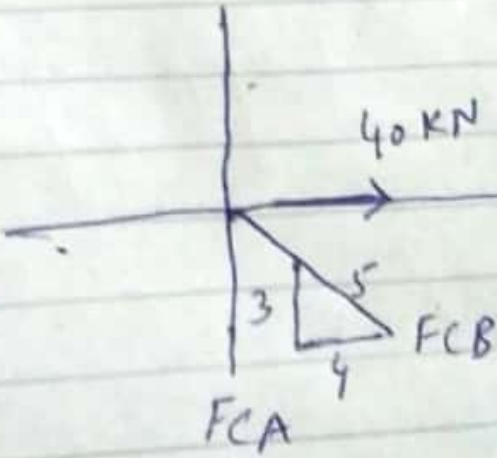
Determine the force in each member of the truss and State wether it is in tension or Compression.

Sold:-

Given that



First of All we Analys Joint (C) So,



$\xrightarrow{+} \sum F_x = 0$

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

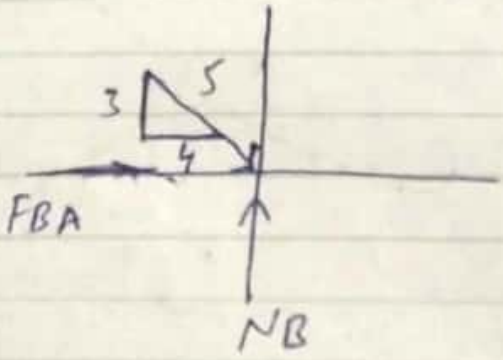
$\boxed{F_{CB} = 50.0\,KN\,(C)}$

$+\uparrow \sum F_y = 0$

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

$\boxed{F_{CA} = 30.0\,KN\,(T)}$

NOW we Analysis Joint (B



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

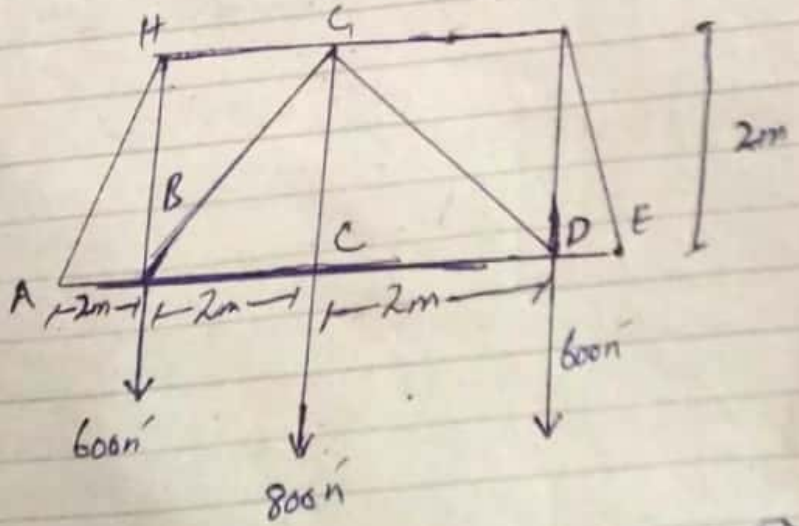
$\boxed{F_{BA} = 40.0\,KN\,(T)}$

$+\uparrow \sum E_y = 0 \quad N_B - 50.0\left(\frac{3}{5}\right) = 0$

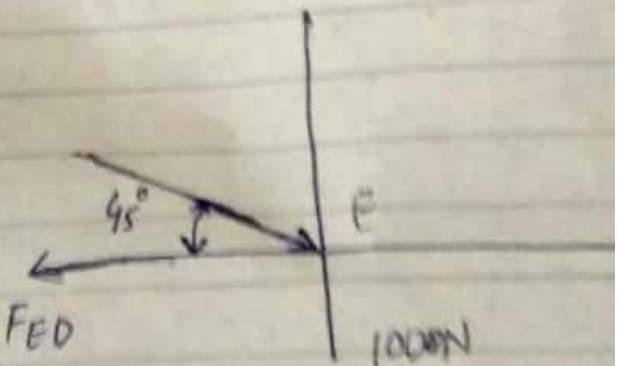
$\boxed{N_B = 30.0\,KN}$

#02: Determine the force in each member of the truss. Indicate if the member is in tension OR Compression. Assume all members are pin connected.

Solu: Given That:



Now we Analyse Joint (E)



$+\uparrow \Sigma F_y = 0$

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

$F_{EF} = 1414.21\,N(C) =$

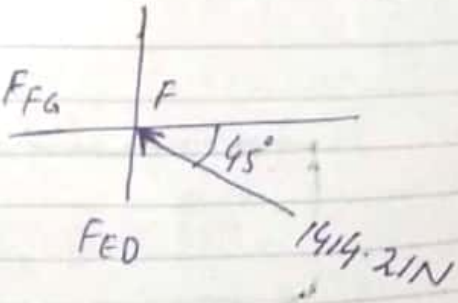
$1.41\,kN(C)$

$\xrightarrow{+} \Sigma F_x = 0$

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

$F_{ED} = 100\ N(\bar{T}) = 1\ KN(\bar{T})$

Joint (F)



$\xrightarrow{+} \Sigma F_x = 0$

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

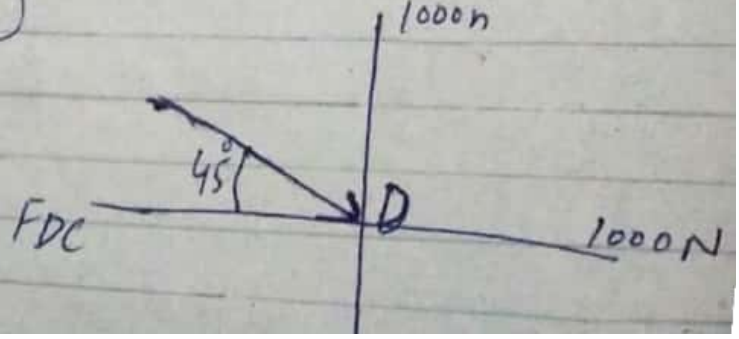
$F_{FG} = 1000\ N(C) = 1\ KN(C)$

$+\uparrow \Sigma F_y = 0;$

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

$F_{FD} = 1000N(\bar{T}) = 1KN(\bar{T})$

Joint (D)



$+\uparrow F_y = 0$

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

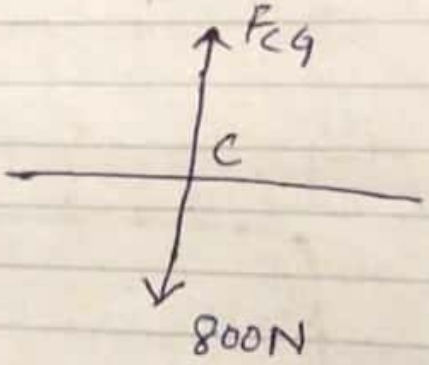
$F_{DG} = 565.69\ N(C) = 566\ N(C)$

$\pm\rightarrow \quad \Sigma F_x = 0;$

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

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

Joint (C)



$+\uparrow \Sigma F_y = 0$

$F_{CG} - 800 = 0$

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

Due to Symmetry.

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

$F_{HB} \cdot F_{FD} = 1.0\ kN(T)$

$F_{BG} = F_{DG} = 5.66 N (T)$

$F_{HG} = F_{FG} = 1.0 KN (C)$

$F_{AH} = F_{EF} = 1.41 KN (C)$

$F_{AB} = F_{ED} = 1.0 KN (T)$