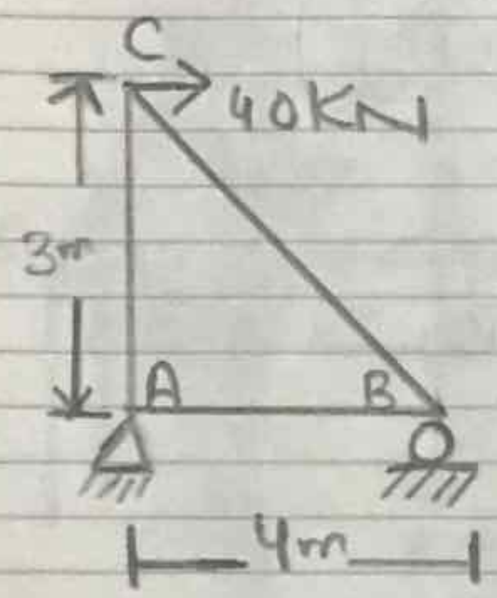
①

NAME : SULEMAN HAKEEM

I·D : 16757

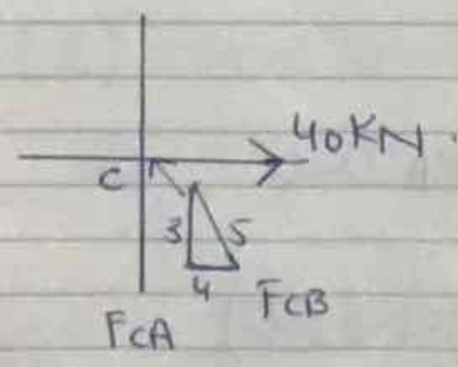
ASSIMENT

Q 1)



First of all analys Joint (C)

So.



$\rightarrow^{+} \sum F_x = 0$

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

$F_{CB} = 50.0\ KN\ (c).$

②

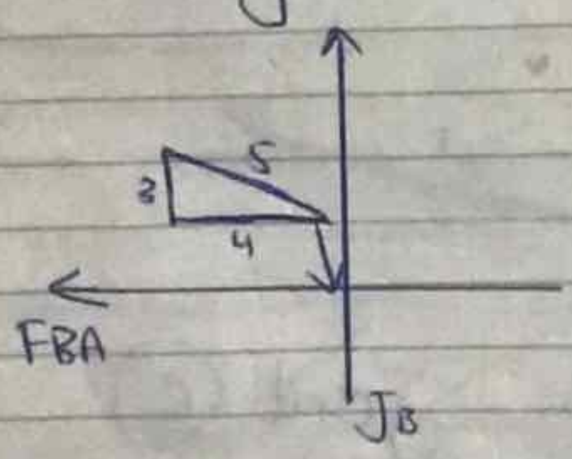
$\uparrow + \sum F_y = 0$

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

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

Now

Analyse Joint B.



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

$50\left(\frac{4}{5}\right) - F_{BA} = 0$

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

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

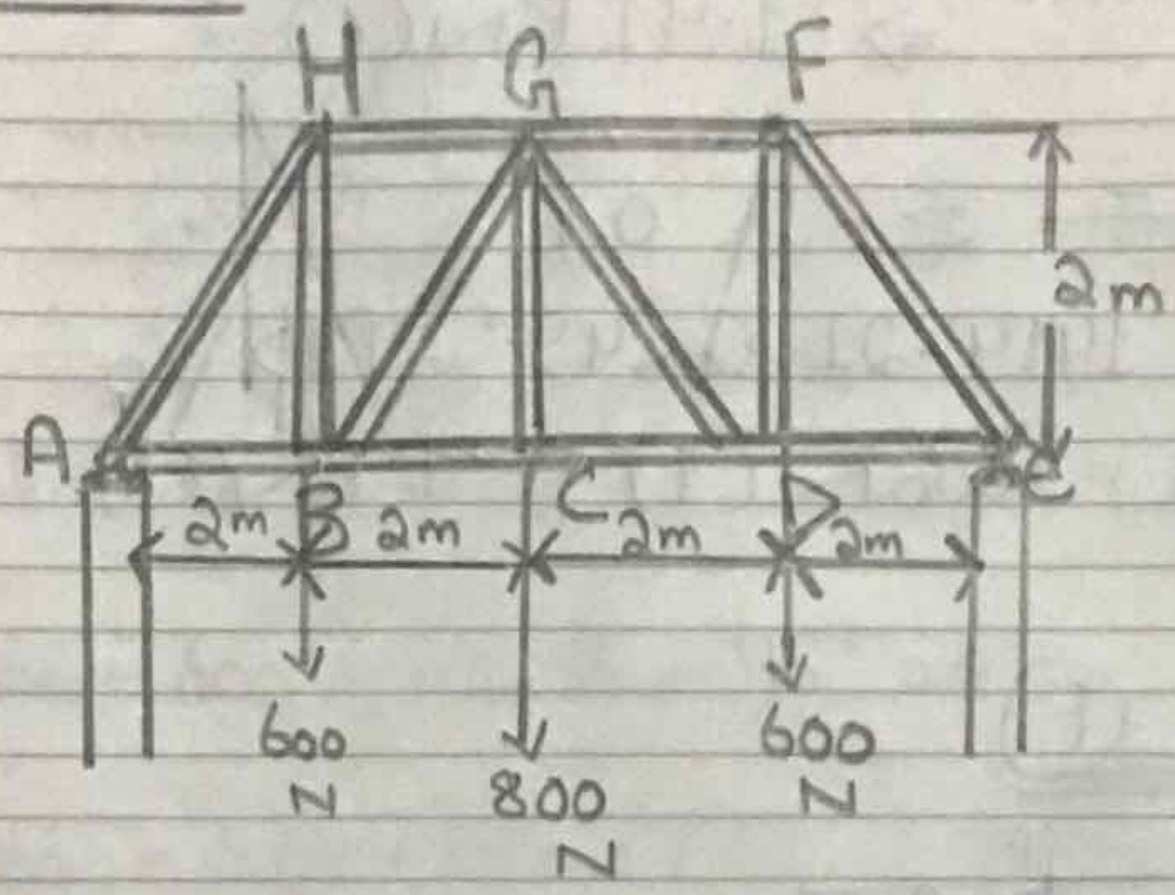
$N_B - 50.0\,(3/5) = 0$

$N_B = 30.0\,KN.$

3

Q2)

GIVEN THAT :-

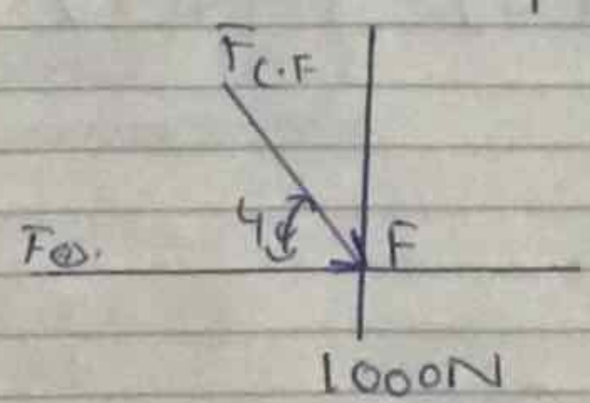


$\circlearrowleft + \quad \Sigma M_A = 0$

$\Sigma y\,(8) - 600(2) - 800(4) - 600(6) = 0$

$\Sigma y = 1000 \text{ N}$

Now we find Joint (E)



$\uparrow + \quad \downarrow - \qquad \Sigma F_y = 0;$

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

$F_{EF} = 1414.21 N (C).$

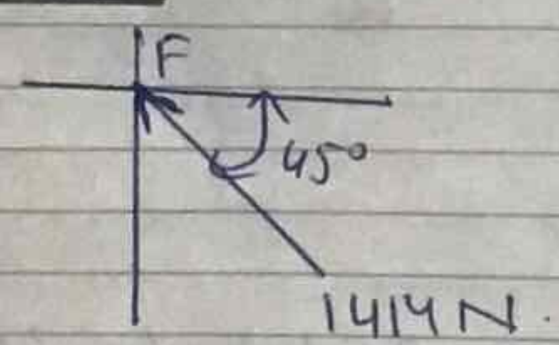
$\Rightarrow 1.41 KN (C).$

$\xrightarrow{+} \xleftarrow{-} \Sigma F_x = 0;$

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

$F_{ED} = 1000 N (t) = 1 KN (t).$

JOINT (F)



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

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

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

$\uparrow \Sigma F_y = 0;$

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

$F_{ED} = 1000 N (T) = 1 KN.$

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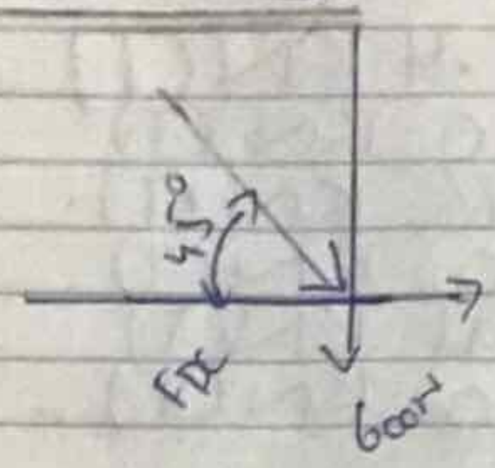
Joint (D)



$+\uparrow \downarrow - \quad \Sigma F_y = 0;$

$1000 - 600 - F_{DG} \sin 45° = 0$

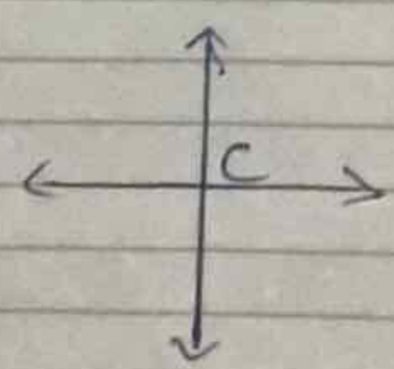
$F_{DG} = 565.69 N (C) = 566 N (C).$

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

$1000 + 565.69 \cos 45° - F_{DC} = 0.$

$F_{DC} = 1400 N (T) = 1.4 KN (T).$

Joint (C)



$\uparrow \Sigma F_y = 0$

$F_{CG} - 800 - 0$

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

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Due to Symmetry.

$F_{BC} = F_{DC} = 1.4$ KN (T)
$F_{HB} = F_{ED} = 1.0$ KN (T)
$F_{BG} = F_{DG} = 566$ KN (T).
$F_{HG} = F_{CG} = 1.0$ KN (T)
$F_{AH} = F_{EF} = 1.41$ KN (T)
$F_{AB} = F_{ED} = 1.0$ KN (T).

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