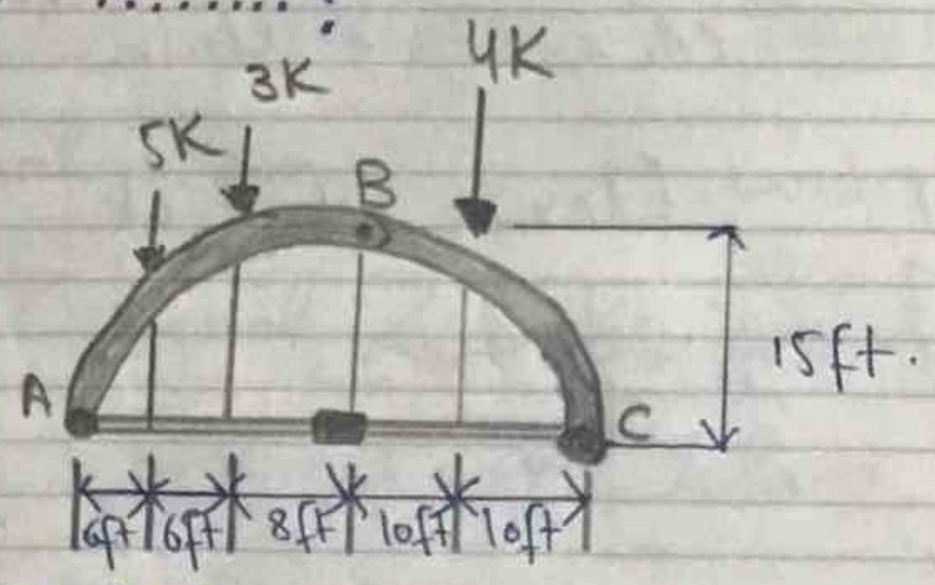
1

NAME = SULEMAN HAKEEM
I·D = 16757
ASSIMENT = 4

1 2) The tied three-hinged arch is Subjected .....?

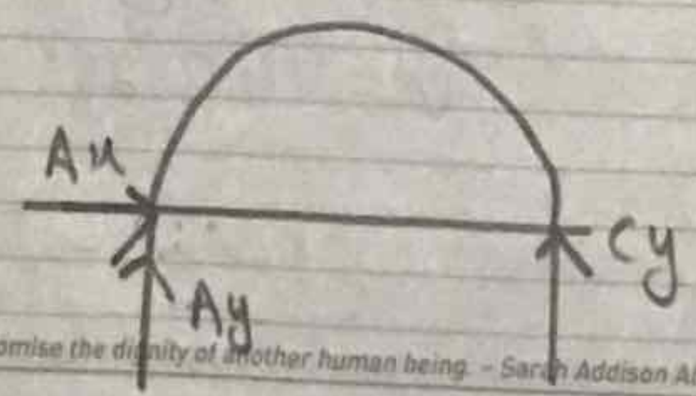


ENTIRE CIRCLE

$\circlearrowleft + \Sigma M_A = 0$

$-5(6) - 3(12) - 4(30) + C_y(40) = 0$

$C_y = 4.65\ K$ Ans.



Now

$+\uparrow \sum F_y = 0$

$A_y + 4.65 - 5 - 3 - 4 = 0$

$A_y = 7.35\ K.$

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

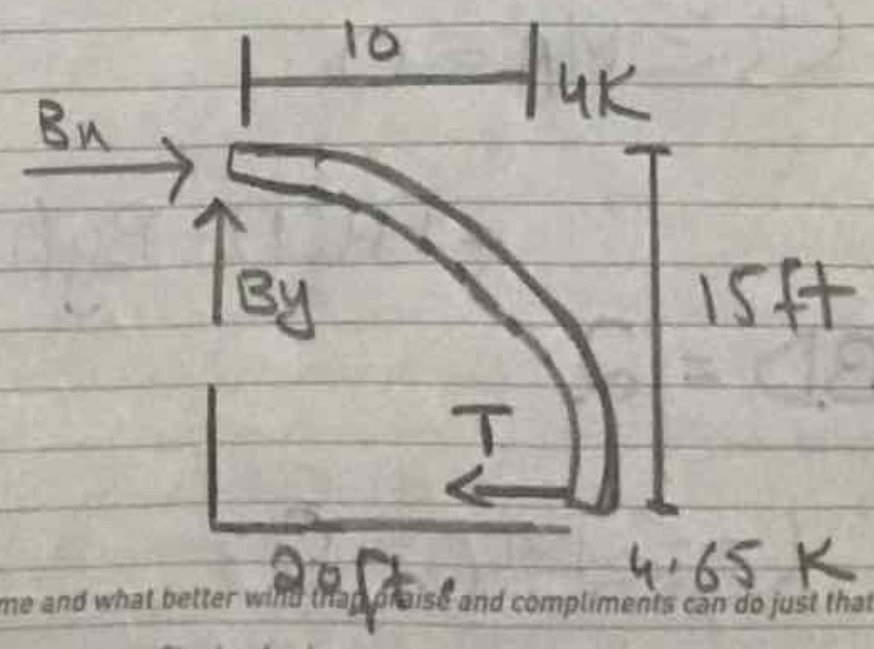
$A_x = 0.$

SECTION BC :

$\circlearrowleft + \sum M_B = 0.$

$-4(10) - T(15) + 4.65(20) = 0$

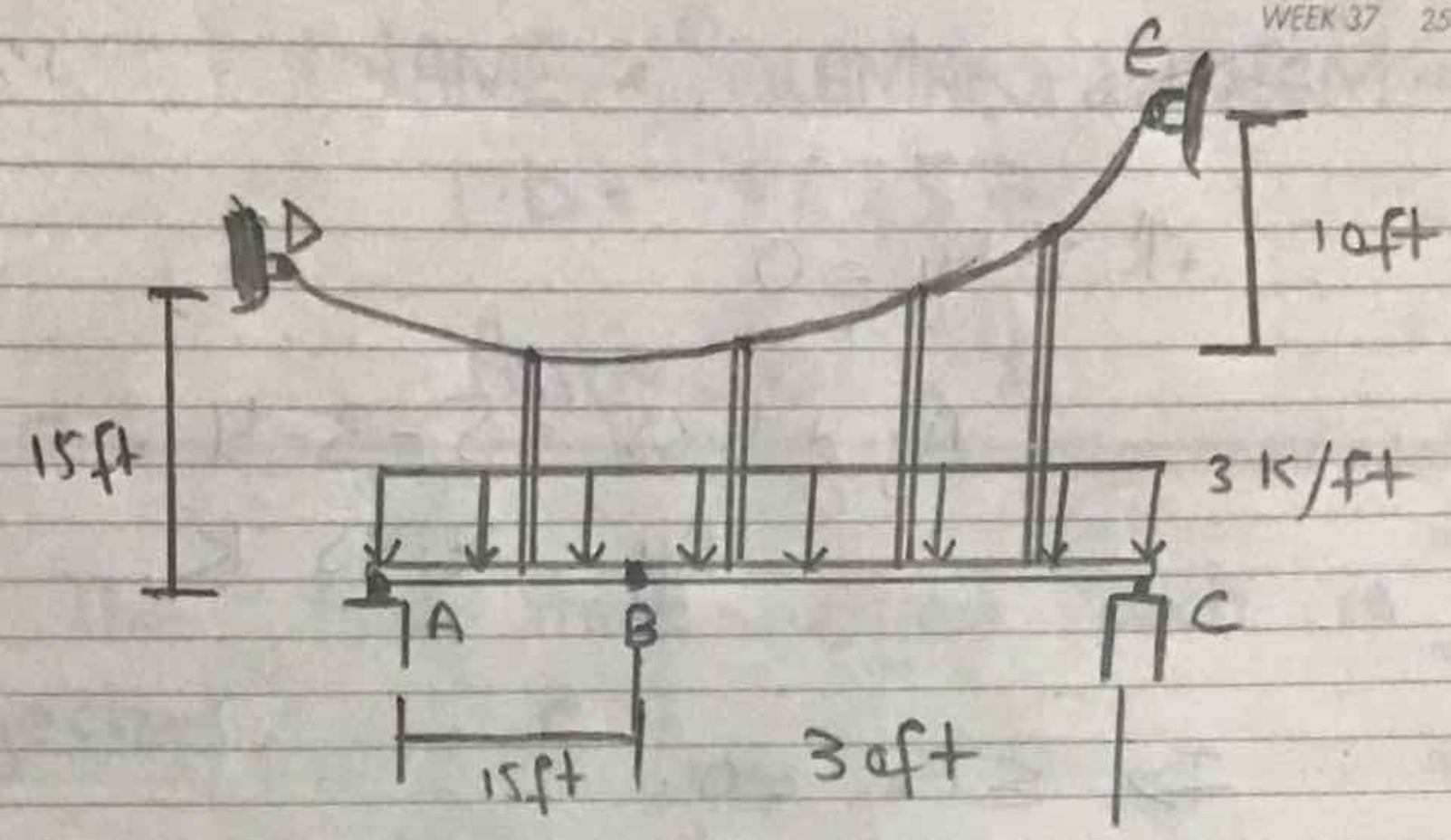
$T = 3.54\ K.$



6

3

Q1)



Member BC ;

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

$B_x = 0 .$

Member AB ;

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

$A_x = 0 .$

FBD = 1

$\circlearrowleft + \sum M_A = 0 .$

$-FH(1) - B_y(15) - 25(5) = 0 .$

FBD = 2

$\circlearrowleft + \sum M_C = 0 ;$

4

Holy Cross Day

257-108 WEEK 37

$$+ -F_H(10) - B_y(45) + 80(\cancel{20}\ 15) = 0$$

Solving.

$$B_y = 0 \quad \therefore \quad F_H = F_{min} = 135\ K.$$

Max cable force occure at C, where slop is the maximum.

So we know

$$w_o = \frac{2F_H h}{L^2} = \frac{2(135)(10)}{30^2}$$

$$w_o = 3\ K/ft$$

$$F_{max} = w_o L \sqrt{1 + \left(\frac{L}{2h}\right)^2}$$

$$= 3(30)\sqrt{1 + \left(\frac{30}{2(10)}\right)^2}$$

$$F_{max} = 162\ K.$$

Each hanger carries 5ft of wo.

$T = (3^K/ft)(5\,ft)$

$T = 15K$

January : 18
February : 18
March : 18
April : 18
May : 18
June : 18