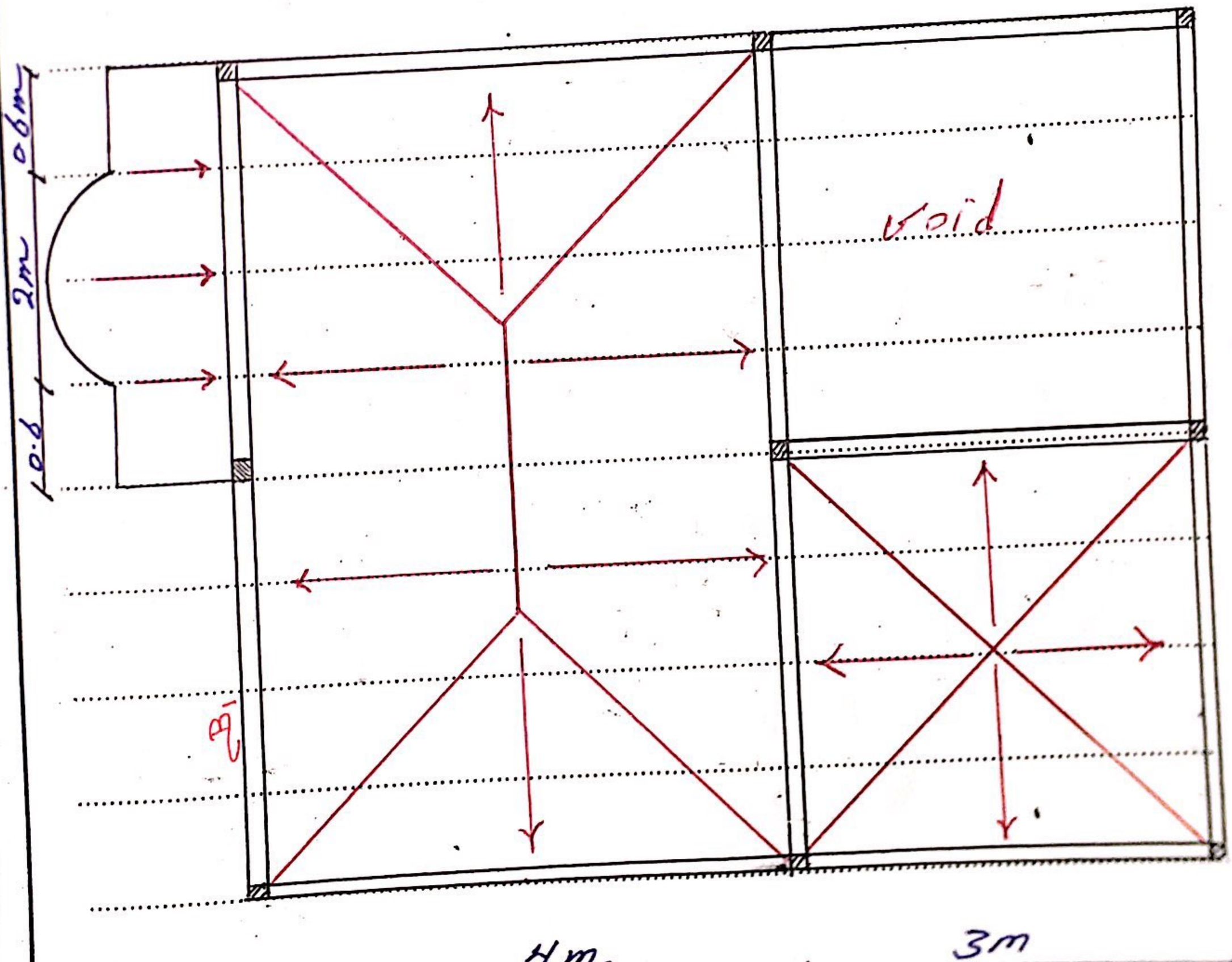
Eng.

"Model Answer"

D.load List For the Plan :-



Eng.

→ o.w of beams :- o.w = b t δ R.C

= 0.25 * 0.6 * 25 = 3.75 kN/m

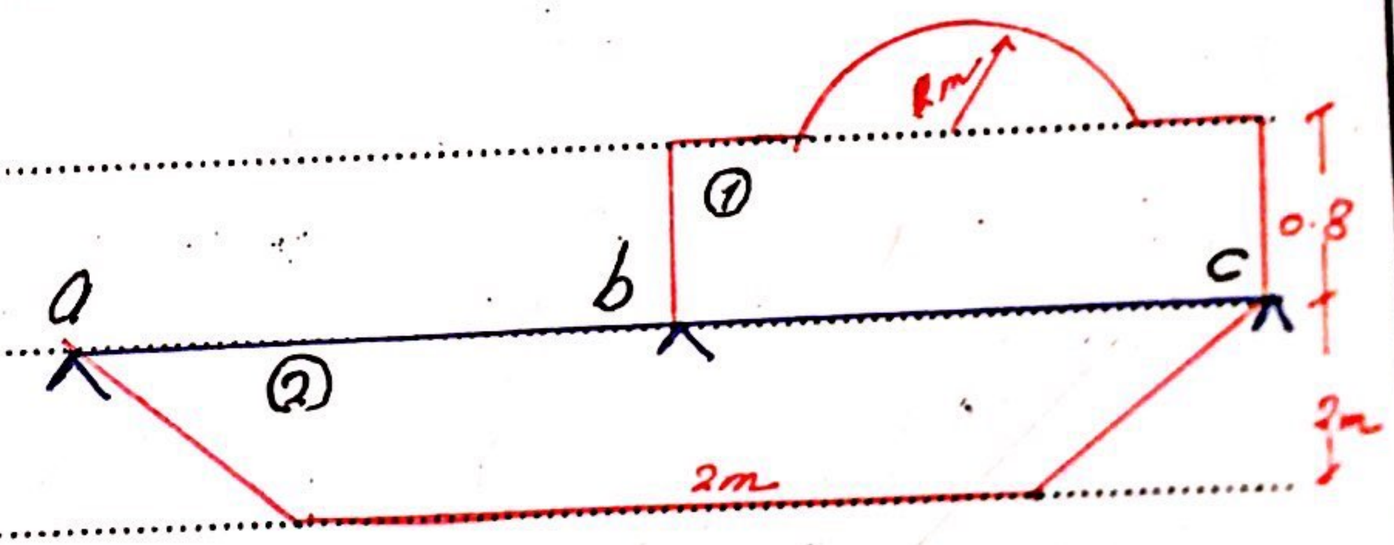
→ weight of wall = Ww = bw hw δw

= (3 − 0.6) * 2.5 = 6 kN/m

→ weight of slab = D.L$_s$ = t_s δc + f.c + l.l

= 0.14 * 25 + 1.5 + 3 = 8 kN/m²

For B$_1$



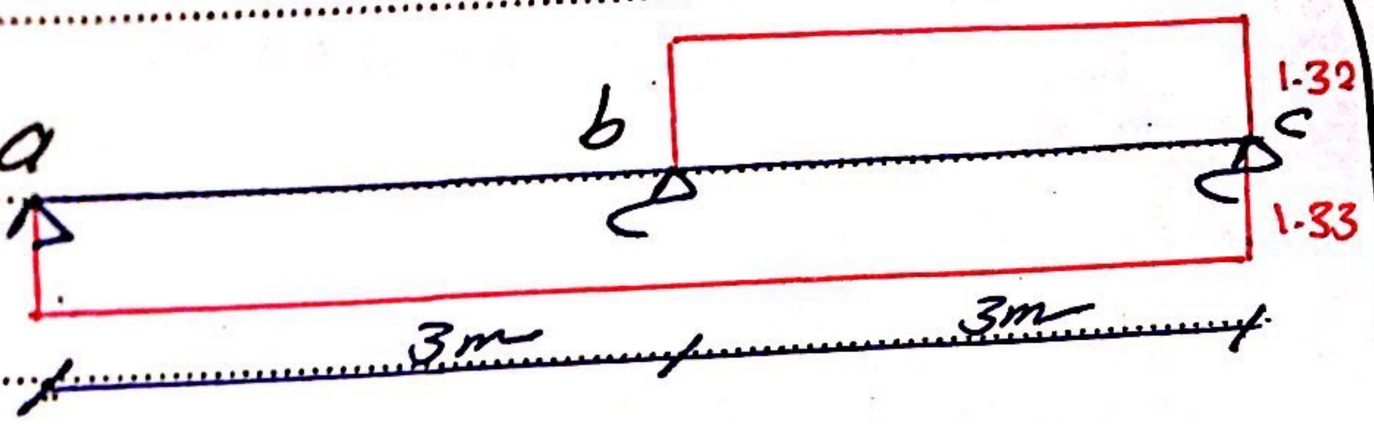
For shape ① $h_{eq} = \frac{\Sigma Area}{span}$

$= \frac{0.8 * 3 + \frac{1}{2}\pi(1)^2}{3} = 1.32m$

For shape ②

$= \frac{\frac{2+6}{2} * 2}{6} = 1.33 m$

Eng.

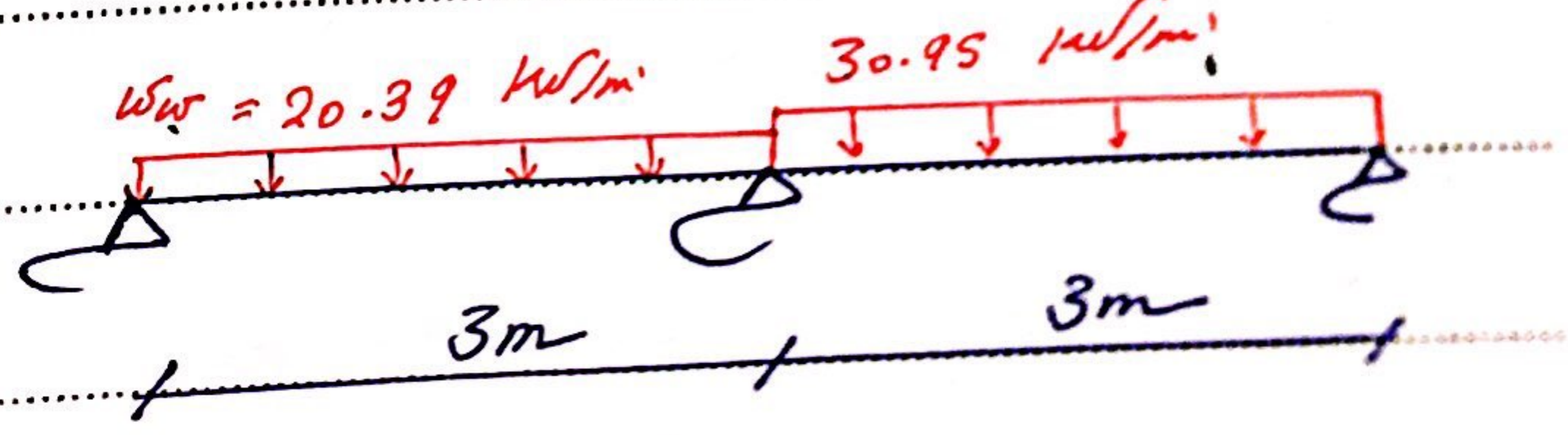


For part a b

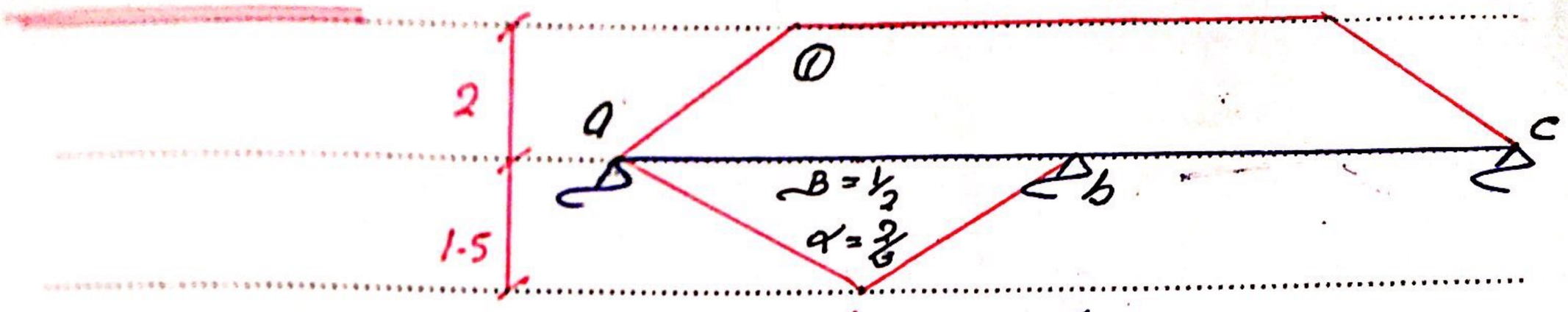
D.l = 3.75 + 6 + 8 * 1-33 = 20.39 kN/m

For part b c

W.load = 3.75 + 6 + 8 (1.32 + 1.33) = 30.95 kN/m



for B_2



leg for shape ① $leg = \frac{\frac{2+6}{2} * 2}{6} = 1.33$

For part a b

Load for shear :-

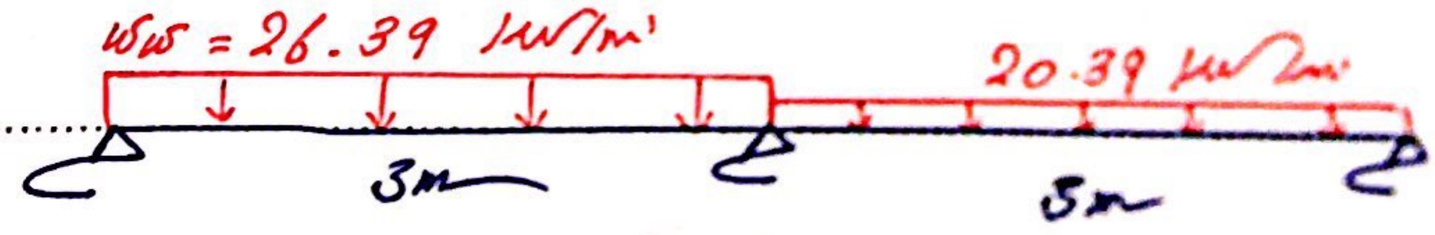
$ww = 3.75 + 6 + 8 * 1.33 + 8 * 1.5 * \frac{1}{2} = 26.39$ kN/m

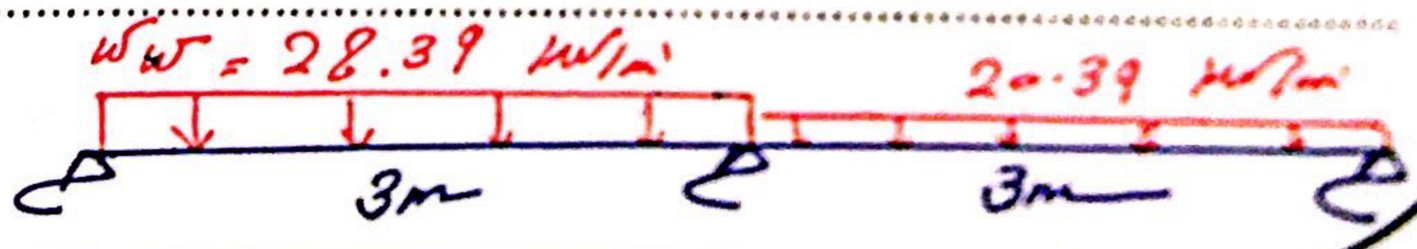
load for moment :-

$ww = 3.75 + 6 + 8 * 1.33 + 8 * 1.5 * \frac{2}{3} = 28.39$ kN/m

For part b c

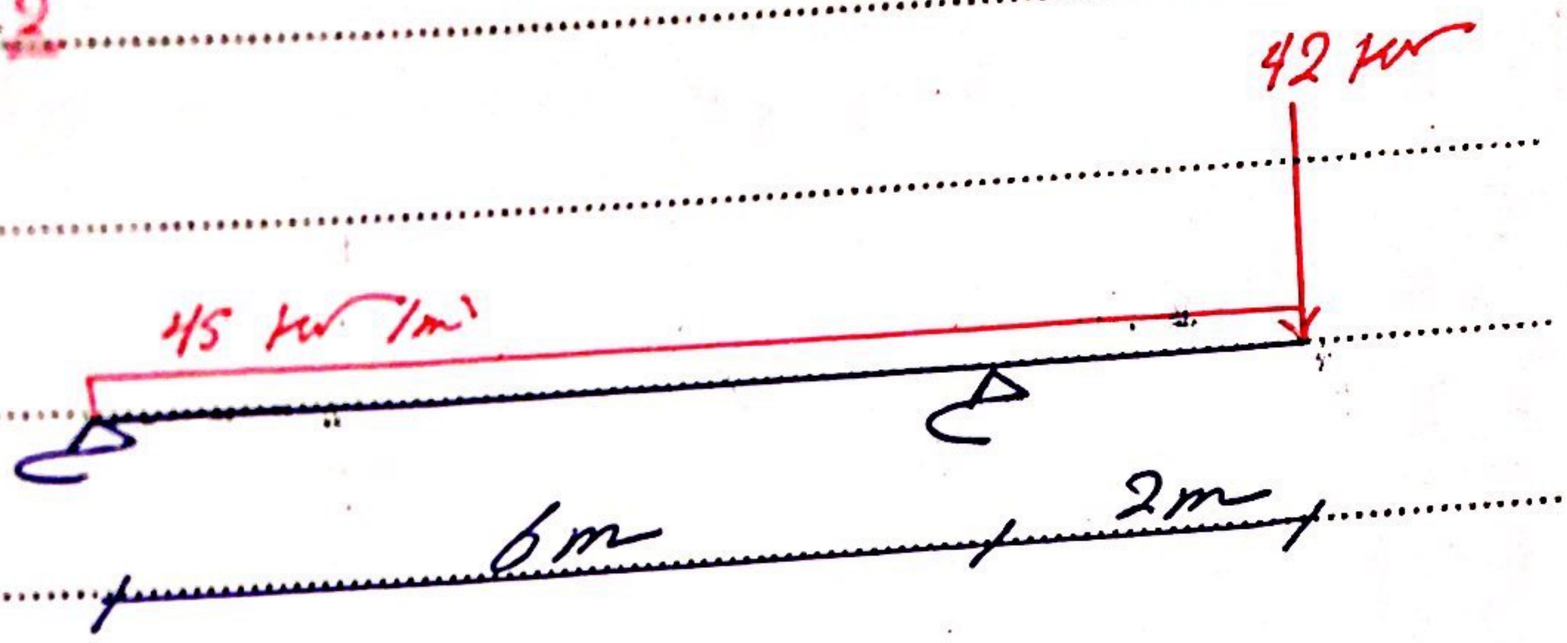
$ww = 3.75 + 6 + 8 * 1.33 = 20.39$ kN/m

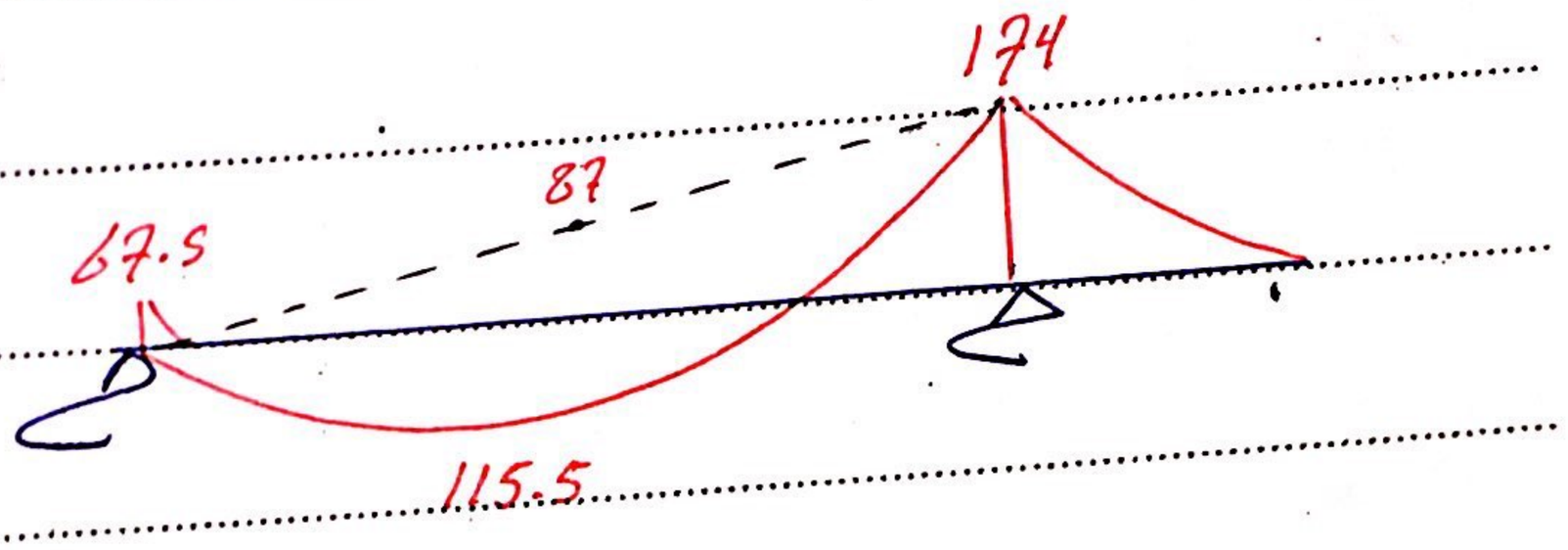




Eng.

Answer 2





Design For sec 1

b = 250 mm t = 500 mm

d = 450 mm M_u = 174 kN.m

$$450 = C_1 \sqrt{\frac{174 * 10^6}{25 * 250}}$$

C_1 = 2.69 unsafe

J =

$$d = 3.5 \sqrt{\frac{174 * 10^6}{25 * 250}} = 583 \text{ mm}$$

take d = 600 t = 650 mm

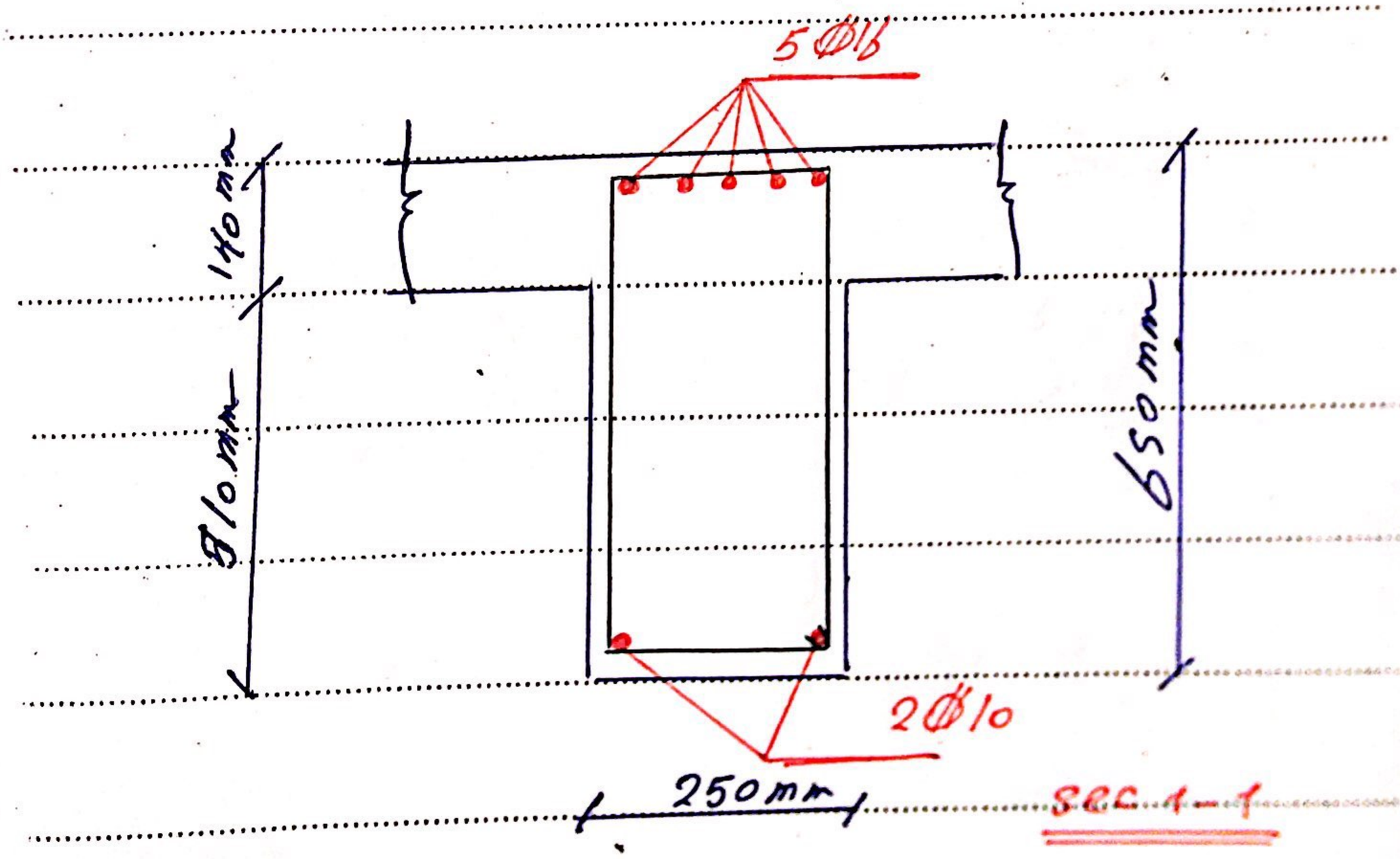
$C_1 = 3.59$ $J = 0.782$

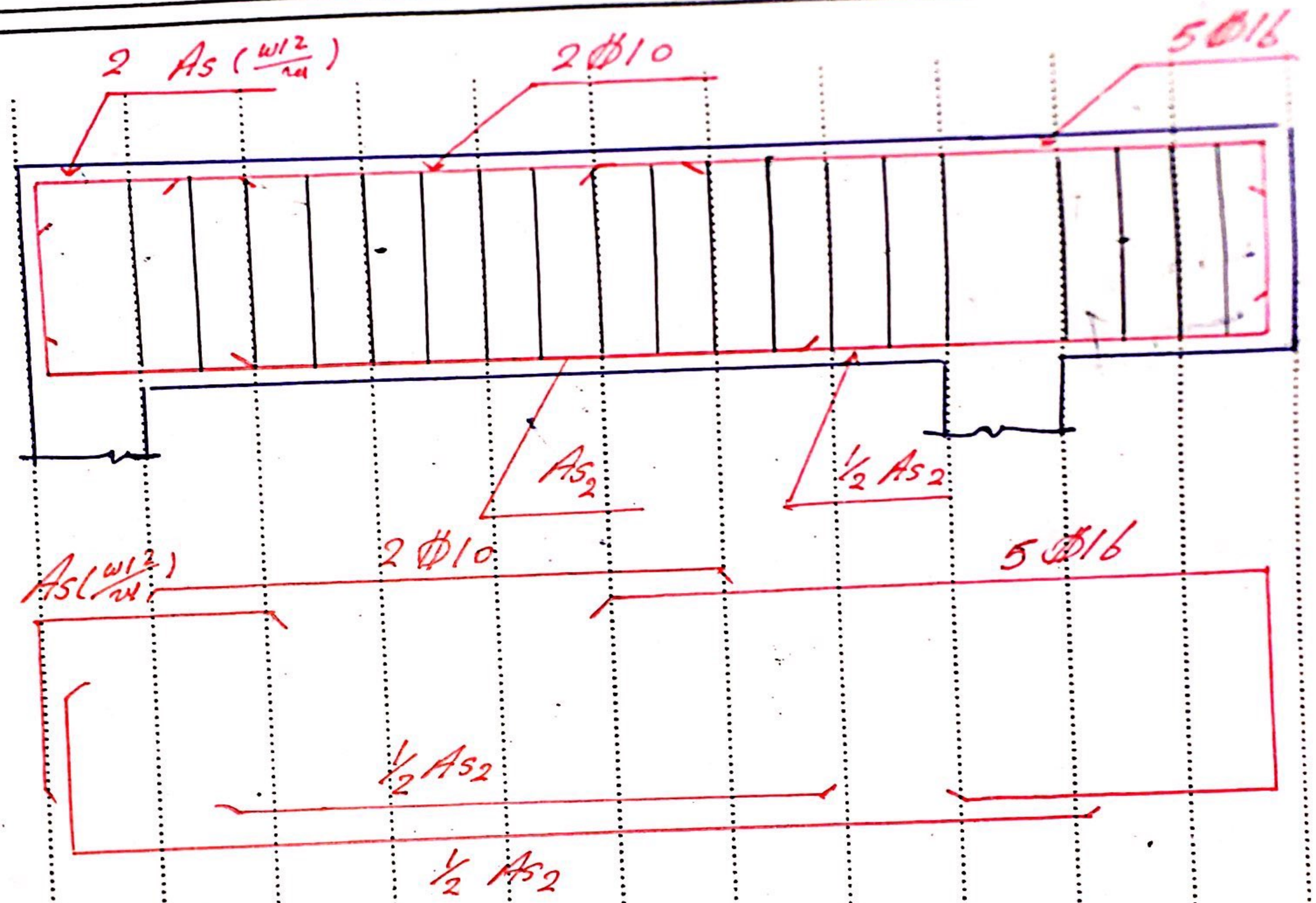
$$A_s = \frac{174 * 10^6}{350 * 0.782 * 600} = 950 \text{ mm}^2 \text{ mm}^2$$

use 5 Φ16

$$A_{s\,min} = \frac{1.1}{F_y} b\,d = 471.4 \text{ mm}^2$$

$A_s' = (0.1 \sim 0.2) A_s = (95 \sim 190 \text{ mm}) = 2\,\Phi 10$





R.F.T (Elevation)

Eng.