aplicación de vigas, marcos, armaduras y arcos

Nombre del Alumno Dulce María Guadalupe Jimenez Pérez

Nombre del tema aplicación de vigas, marcos, armaduras y arcos

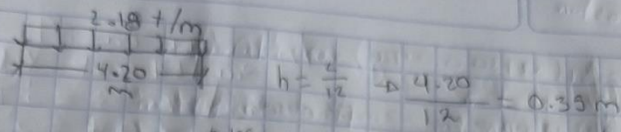Parcial 2

Nombre de la Materia análisis de estructuras

Nombre del profesor   ARQ. Pedro Alberto

Nombre de la Licenciatura arquitectura

Cuatrimestre 5°

$2.18 \, t/m$

$h = \dfrac{\ell}{12} \rightarrow \dfrac{4.20}{12} = 0.35 \, m$

$4.20 \, m$

0.175

① Momento $/8 \; (2.18 \, t/m)(4.20^2)$

Momento $= 4.80 \, t \cdot m \rightarrow R's$

② Mu

$4.80 \, t \cdot m \cdot 1.25 =$

$P = 0.00926$

$AS = 0.00926 \, (20)(31) = 5.73 \, cm^2$

$5.73 \cdot /.2 = 2.86 \, cm^2 \; - 2\#6 = 5.74 \, cm^2$

$\dfrac{5.73 \, cm^2}{3} \quad 1.91 \, cm^2 \; \boxed{= 3\#5 = 5.97 \, cm^2}$

comprobación de P máx

$\dfrac{5.74 \, cm^2}{20 \, (31)} = 0.0092 < P\text{máx} \; ☺$
  $\quad$ cm $\quad$ cm

$\dfrac{5.97 \, cm^2}{20 \, (31)} = 0.00962 < P\text{máx}$
  $\quad$ cm $\quad$ cm

① ——— 4.20 ——— ⑧
  [$r \, 3\#5$]

$V = \dfrac{w \, (\ell)}{2} \rightarrow \dfrac{2.18 \, t \cdot m \, (4.29 \, m)}{2} = 4.578 \, ton$

$V_{cR} = 0-7 \, fc \cdot b_0 d \cdot (0.2 + 30 \, \rho) \sqrt{f^*c}$

$\dfrac{\Delta s \, prol.}{P \cdot P}$

$\Delta \, l.S = P_{min}(6) d$

$\Delta \cdot l.S = 0.00235 \, (20)(31) =$

$\dfrac{1.457 \, cm^2}{2} = 0.728 \, m^2 =$

$2\#4 = 2.54 \, cm^2$

$V_{CR} = 0.7 \cdot 08 \cdot 20 \cdot 31 (02 + 30 \, 0.00926) \sqrt{170} \, kg/cm^2$

$V_{CR} = 397.2 (0.477) \, 13.63 \, k/cm \rightarrow multiplicación$

$V_{CR} = 2,157.95 \, kg = 2.15795 \, ton < vu$

$V_{CR} = 1.5 \cdot FR \cdot b \cdot d \sqrt{f'c}$

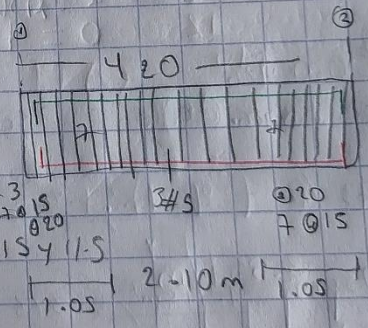$V_{CR} = 1.5 \cdot 0.8 \cdot 20 \cdot 31 \cdot 13.93$

$V_{CR} = 9,694.32 = 9.694 \, ton > vu$

$S = xtremos = \dfrac{4.20^m}{4 \, (1/4 \, norma)} = 1.05 \, m$

$S \, A = \dfrac{1.05}{0.15} = ⑦$

$S \, max = \dfrac{0.5 (0.35)}{4} = 0.175 \, m$ ⑳

420

E#3 7@15 θ20

3#5

@20 7@15

7 y 7 = 15 y 11.5

1.05   2.10 m   1.05

$25 \, pzas. (1.04) = 26 \, m \begin{array}{l} \\ +10\% \end{array} = \dfrac{28.6 \, m}{12} = 2.38 = 3 \, pzas$

1.65 ton   1.65 ton

$M = F \cdot a$

$Ra = Rb = F$
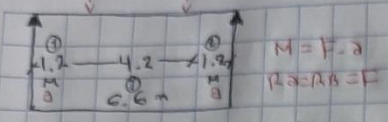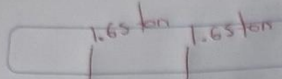
$F'c = 200 \ kg/cm^2$

$Fy = 4,200 \ kg/cm^2$

$b = 20 \ cm$

$h = 55 \ cm$

$d = 51 \ cm$

$M = 1.98 \ t \cdot m$

$V = 1.65 \ ton$

$VcR = 2.01 \ ton$

$P = 0.00235 \rightarrow$ Dato calculado

① $1.65 \ ton \ (1.20 m) = \underline{1.98 \ ton \cdot m}$

② $Mu = 1.98 \ t \cdot m \ (1.2^{x5}) = 237.600 \ kg \cdot m$

③ $h = \dfrac{6.6m}{12} = 0.55m$

④ $q = \sqrt{\dfrac{237.600 \ K \cdot cm}{0.9 \cdot 20 \cdot 51^2 \cdot 136}} \cdot 2 + 1 = \underline{0.962}$

⑤ $p = \dfrac{(-0.962 + 1) \cdot 136 \ kg/cm^2}{4,200 \ kg/cm^2} = \underline{0.00123} < p \ min$
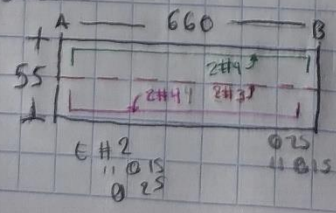
⑥ base por peralte

Area acero   b   d

$0.00235 \ (20cm) \ (51cm) = \underline{2.397 \ cm^2}$

⑦ diseño

$\dfrac{2.397 \ cm^2}{2} = \underline{1.19 \ cm} \longrightarrow 1\#4 = 1.27 \ cm \rightarrow$ Tabla X2

$2\#4 = \underline{2.54 \ cm^2}$

⑧ Dibujo

$\dfrac{6.6m}{4} = \dfrac{1.65}{0.15} = 11$

de arranque

$0.5 (55) = 27.5 \ cm$