Question 6 Estimate an approximate value of uniformly distributed loading, w in kN/m², for the following types of loading :

40 m/s wind : w = ...kN/m²

Office live loading : w = ...kN/m²

Highway, HA loading : w = ...kN/m²

Question 7 Estimate an approximate value for the working load (SLS) stress in compression, fc, (fully restrained against buckling) for the following materials:

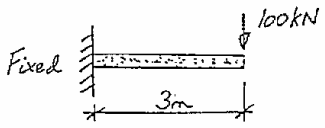
Grade 40 (fcu = 40 N/mm²) concrete : fc = ...N/mm²

Grade 43 (fy = 250 N/mm²) mild steel : fc = ...N/mm²

Strength class 4 (SC4 or SS grade) timber : fc = ...N/mm²

3.5 N/mm², 100mm thick blockwork with grade iii) mortar : fc = ...N/mm²

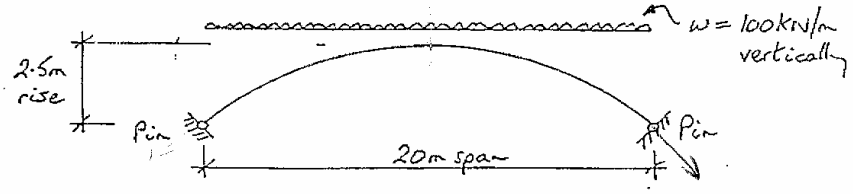
Question 8 For the following, constant inertia, cantilever, calculate the tip deflection:



$EI = 90{,}000\ kNm^2$

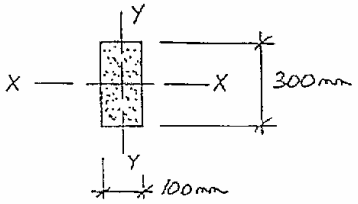
Tip deflection = ...mm

Question 9 For the following parabolic arch, calculate the midspan thrust in the arch:



Midspan thrust = ...kN

Question 10 Calculate the minimum radius of gyration, $r_{min.}$ for the following steel section:



r_{min} = ...cm

Sketch the shape of the allowable axial stress with respect to slenderness ratio(ℓ/r_{min}), allowing for material yield: