List of numerical answers

Q1(b)(i) T(carbonation) = 42.5 years;
T (chlorides) = 50 years;
T (initiation) = 42.5 years

Q2(c)(ii) $\sigma_3 = 4$ MPa

Q3(a)(i) $M_{cr} = 3.06 \times 10^6 \times f_{ct}$ Nmm

Q3(a)(ii) $x = 106.5$mm , $I_{cr} = 225.1 \times 10^6$ mm^4 ; $\varepsilon_s = 2.87 \times 10^{-11} \times M_a$

Q3(b) $P_f = 0.642$

Q4(a) (i) $M_u = 266.4$ kNm

Q4(a)(ii) Max V = $V_{Rd,S} = 259.4$ kN

Q4(a)(iii) Min. anchorage length:
$l_a = 896$ mm for yield of bar; $l_a = 265$ mm for extra shear force

Q4(b) $b_w = 111.1$ mm