Remarks: See §4.6, pages. 184 till 186
See §4.7.4, pages. 196 till 198

Answers:

a. $\sigma_b = +25\ \text{N/mm}^2$ in the span at F_1

b. $\sigma_b = -15\ \text{N/mm}^2$ at the right support point

Explanation:

Support point reactions $75\ \text{kN}\ (\uparrow)$ left and $165\ \text{kN}\ (\uparrow)$ right

$M_{\text{span}} = 150\ \text{kNm}\ (\smile)$

$M_{\text{supportpoint}} = 90\ \text{kNm}\ (\frown)$

$$W_b = \frac{I_{zz}}{e_b} = \frac{1{,}8\times10^9\ \text{mm}^4}{300\ \text{mm}} = 6\times10^6\ \text{mm}^3$$

$$W_t = \frac{I_{zz}}{e_t} = \frac{1{,}8\times10^9\ \text{mm}^4}{150\ \text{mm}} = 12\times10^6\ \text{mm}^3$$

$$\sigma_{\text{b;span}} = +\frac{M_{span}}{W_b} = +\frac{150\times10^6\ \text{Nmm}}{6\times10^6\ \text{mm}^3} = +25\ \text{N/mm}^2$$

$$\sigma_{\text{t;span}} = -\frac{M_{span}}{W_t} = -\frac{150\times10^6\ \text{Nmm}}{12\times10^6\ \text{mm}^3} = -12{,}5\ \text{N/mm}^2$$

$$\sigma_{\text{b;supportpoint}} = -\frac{M_{\text{supportpoint}}}{W_b} = -\frac{90\times10^6\ \text{Nmm}}{6\times10^6\ \text{mm}^3} = -15\ \text{N/mm}^2$$

$$\sigma_{\text{t;supportpoint}} = +\frac{M_{\text{supportpoint}}}{W_t} = +\frac{90\times10^6\ \text{Nmm}}{12\times10^6\ \text{mm}^3} = +7{,}5\ \text{N/mm}^2$$

The sign of the stress follows from the symbol of the bending moment