

Worked solution for Q4, F31ST1 Exam paper '05/'06

ΔS for water originally at 100 C:

$$\Delta S_1 = \frac{75.6}{18} \int_{373}^{348} \frac{dT}{T} = -291 \text{ J/K}$$

{1} for formula; {1} for correct value

ΔS for water originally at 50 C:

$$\Delta S_2 = \frac{75.6}{18} \int_{323}^{348} \frac{dT}{T} = 313 \text{ J/K}$$

{1} for formula; {1} for correct value

$\Delta S_{\text{Total}} = + 22 \text{ J/K}$ **{1} for final result**