2.29 Conveniently the combinatorics have been worked out in the text with the multiplicities given in Figure 2.5.

For the most likely macrostate \( (g_4 = 60) \)
\[
\Omega = 6.9 \times 10^{114} \Rightarrow S = k \ln 6.9 \times 10^{114} = 264 \text{ k}
\]

For the least likely macrostate \( (g_4 = 0) \)
\[
\Omega = 2.8 \times 10^{81} \Rightarrow S = k \ln 2.8 \times 10^{81} = 188 \text{ k}
\]

If we assume that all microstates are accessible (over very long time scales) then, since there are \( 9.3 \times 10^{115} \) microstates,
\[
S = k \ln 9.3 \times 10^{115} = 267 \text{ k}
\]