7.25 \[ C_v = \left( \frac{\pi^2 kT}{3 e_F} \right) Nk \quad \text{no. } C_v = 3Nk \]

\[ e_F = 7 \text{ eV} \quad (\text{from problem 7.19}) \]
\[ kT = 140 \text{ eV} \]

\[ \Rightarrow \frac{kT}{e_F} = \frac{1}{40.7} = \frac{1}{280} \]

\[ \Rightarrow C_v = 0.018 \text{ Nk} \quad \text{no. } C_v = 3Nk \]

As expected, the heat capacity of the Fermi gas is much suppressed compared to lattice vibrations, because so many of the electrons can't participate.