Feedback:

Q1. The Schrödinger equation was correctly obtained. You need to use the formula provided during the workshop to obtain energy eigenvalues. Please find the details in the model answer.

Q2. Most of the questions were solved correctly. Please check minor details as commented. Please note the negative $f(E)$ have no physical meaning.

Please also remember $f(E)$ approach 1 for $E \sim 0$, indicating that almost all the states are occupied. Due to the Pauli exclusion principle, these may not be the lowest energy state. On the other hand, $f(E)$ approach 0 for $E \sim \infty$, indicating that almost all the states are unoccupied.

Q3. Most of the questions were answered correctly. Please check minor details as commented, especially consider the occupancy of energy levels.

Q4. Most of the questions were answered correctly. For the last question, please make sure you consider both the distribution function and the density of states are considered to calculate $n = \int f(E)D(E)dE$.