Physics 472 - 2020

Quantum Mechanics

Quiz 8

Work for 10 minutes, please take a picture, and e-mail it to me at dykmanm@msu.edu

Consider an electron in a hydrogen atom with the total angular momentum quantum number $j = 3/2$, in the absence of a magnetic field. There is applied a strong magnetic field B, such that $\mu_B B$ significantly exceeds the spin-orbit coupling energy $E_{\rm so}$. Find the energy spectrum for the states with the appropriate values of the orbital quantum number l.